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RAILWAY AGE

"Putting the Railways' Houses in Order"

In recent utterances two important public men have implied that the railways must "put their houses in order" as a condition of receiving help from the state and national governments in solving the stupendous problem with which they are confronted. Senator Couzens of Michigan, chairman of the Senate Committee on Interstate Commerce, in an interview published on September 22, discussed the address on the transportation problem delivered by Governor Roosevelt at Salt Lake City on September 17. In his interview Senator Couzens said that the railroads "must strip themselves of all unnecessary or obsolete facilities and accept a return only on necessary or useful capital." At the same time he criticized the Minneapolis, St. Paul & Sault Ste Marie for transferring from Marquette, Mich., to Minneapolis the accounting department of the South Shore railway, a subsidiary, because the transfer affected 41 employees and their dependents living in Marquette.

In his speech at St. Louis on October 21, Governor Roosevelt said that "the railroads should be freed from certain destructive competition, and that the government should undertake for a specified period to see the railroads through, provided they put their own houses in order." What Governor Roosevelt meant by this statement is indicated, at least in part, by the following statements made by him in his speech at Salt Lake City: "The public generally does not realize that 30 per cent of railroad mileage carries only two per cent of the freight and passenger traffic. This does not mean that all this mileage can be or ought to be scrapped. But it does suggest that a considerable amount of judicious pruning can be done without public detriment."

Effect of Reducing Railway Facilities on Employment

Nobody will question that railway managements should do all they can to "put their own houses in order," but while implying that railway managements should abandon and destroy what Governor Roosevelt called "some expensive dead wood in the shape of unnecessary or duplicated facilities," both Governor Roosevelt and Senator Couzens implied that railway employees should be protected, and Senator Couzens actually criticized the management of the Soo railway for abolishing a duplication of facilities because it involved a reduction of railway employment in his state.

It would be enlightening to railway managements if public men who urge the railways to put their houses in order by reducing duplicated and unnecessary facilities and service would say how they believe this can be done without reducing railway employment. Do they think that economies can be effected by tearing up branch lines and closing stations and offices without taking off the payroll those who have been employed on these lines and in these stations and offices? "If it is in the public interest to consolidate and co-ordinate all transportation facilities," said Senator Couzens, "it is not my view that this should be done at the expense and almost ruination of certain groups of citizens."

Does Senator Couzens believe that ten billion dollars of property, representing 40 per cent of the total investment in railroads, can be abandoned and destroyed, as he has said it must be, without a permanent reduction of approximately 40 per cent in the number of persons normally employed by the railways and the "almost ruination of certain groups of citizens"? Wages are almost two-thirds of railway operating expenses, and how could large economies be effected by reducing railway facilities without also reducing the employment and payroll which are made possible only by the earnings derived from the use of the facilities that it is proposed to destroy?

Senator Couzens has said that railway managements should face the facts. Public men should face them, too, and it is not facing them to say that a vast amount of railway investment and property must be destroyed

in the interest of economy, and to criticize railway managements in the same breath for depriving men of employment by adopting on a small scale the very kind of measures of economy that Senator Couzens says must be adopted on a wholesale scale.

Government Policies and the Railway Facilities Needed

The restoration of the employing and purchasing power of the railroads is dependent upon the restoration of their ability to make adequate gross and net earnings. The restoration of their ability to make adequate gross and net earnings is dependent upon their ability to increase their traffic, to get rates for handling it that the traffic will bear and to make such reductions of their operating expenses and fixed charges as may be necessitated by any lasting decline of their gross earnings that may occur. Whether it will be desirable and necessary for the railways to make large reductions of their physical facilities will depend upon how much passenger and freight traffic they can get. The amount of traffic they can get will depend upon the extent to which the total amount of traffic available is increased by the recovery of general business and upon the success that the railways have in meeting the competition of carriers by water, highway and air for this traffic.

In the consideration of the question of how successful the railways probably will be in meeting the competition of these other carriers, we are immediately confronted with the question as to what are probably going to be the policies of the state and national governments with respect to the subsidization and regulation of the railways and other carriers. Nobody can rationally estimate how much traffic the railways will have and what facilities they will require until he knows whether the state and national governments are going to continue to treat the railways and other carriers entirely differently with respect to subsidization and regulation of service and rates or are going to begin to treat them all alike.

Public men should be better able than railway managers or anybody else to forecast the transportation policies of the national and state governments. The very positive predictions made by Senator Couzens as to the amount of railway facilities that will have to be destroyed because of "the rapid development of good roads and the motor industry" unfortunately do not indicate that the chairman of the Senate Committee on Interstate Commerce expects federal legislation that will help establish equal terms of competition between the railways and motor buses and trucks.

Some "Realities" Regarding Wages

There are some disagreeable facts regarding working conditions and wages which railway managers must face and public men should face in considering what the railways should do to put their houses in order. The employees of the competitors of the railways by water and highway are being worked much longer hours and paid much smaller wages per hour than the employees of the railways. The wages and working conditions of railway employees are subject to regulation by the federal Railway Labor act, and cannot be changed without prolonged negotiations, and, if negotiations fail, prolonged hearings by arbitration boards or by a tribunal appointed by the President of the United States. There is no such regulation of the working conditions and wages of the employees of carriers that compete with the railways. Some other classes of carriers have greatly reduced wages during the depression, while the railways are paying wages reduced only ten per cent and temporarily from the highest level ever reached. The railways recently started a movement for a wage reduction of 20 per cent from the basis in effect in 1931, which has been delayed by government interference, and, meantime, railway labor leaders are seeking the establishment of a six-hour day at eight hours' pay, which would result in a large increase in the average hourly railway wage.

Railway managers must face the facts regarding existing and prospective economic conditions. They must face such facts as that commodity prices are now as low as before the war, while railway freight rates average 45 per cent higher and the average hourly railway wage almost 1[illegible]r cent higher than in 1913; that their competitors are able to make lower rates than the railways because they are paying lower wages, are receiving government subsidies and are virtually unregulated; and that there is an increasing demand for reductions of railway rates, both passenger and freight.

Now, what is the attitude of public men who say that large amounts of railway facilities must be abandoned and destroyed because the railways cannot meet competition, toward the plain fact that the difficulty of the railways in meeting competition is largely due to their relatively high operating costs, and that their relatively high costs cannot be sufficiently reduced for competitive purposes without making the working hours and wages of their employees accord more closely with those of the employees of their competitors by waterway and highway? No public man that we know of has as yet faced and publicly grappled with this extremely important fact, and yet it is as plain as a pikestaff. Public men who tell railway managers that they should face the facts about the railroad situation may well be asked to take their own medicine, and say publicly whether they think something should be done to establish equality between the working conditions and wages of employees of all competing carriers.

Fixed Charges in the Railway Problem

The implication of the utterances of some public men is that the way for the railways to put their houses in order is to reduce their fixed charges. At the same time some of them say that the owners of railroad bonds must be protected. Just how are they going to reduce the fixed charges of the railways by reducing the amount of interest paid upon their bonds and other funded securities, and, at the same time, fully protect the

owners of the bonds? And to what extent is the railroad problem one of fixed charges? Total fixed charges in 1931 were 11.4 per cent as great as the gross earnings made in 1929. The decline in railway gross earnings since 1929 has been almost five times as great as total fixed charges, and therefore almost 10 times as great as would be a reduction of one-half in total fixed charges. A reduction of 50 per cent in fixed charges would be equal to only 13 per cent of the total wages paid in 1929. Now, unquestionably, as has been repeatedly pointed out by railway managers for years, the indebtedness and fixed charges of the railways are too high. This is especially true of a number of individual railways.

Obviously, however, a solution of the railroad problem cannot be found in a reduction of fixed charges when a reduction in them of one-half would be equivalent to only 13 per cent of the wages paid, to only 7 per cent of the total operating expenses incurred and to only 5.5 per cent of the gross earnings made in 1929.

"While the railroads are the backbone of our transportation service," said Senator Couzens, "the public should not be asked to pay a return on obsolete or unnecessary facilities any more than they should be asked to pay a return on obsolete or unnecessary facilities in any other line of business." That is not meeting the issue, but merely evading it by setting up a straw man and knocking him out. The railroad problem, as the figures just given demonstrate, is very much more than merely a problem of reducing fixed charges by abolishing "obsolete or unnecessary facilities." It is the problem of determining what facilities the railways will require to handle their traffic if they and other carriers are given equal treatment by the national and state governments. It is the problem of what communities all over the country are going to do without any railroad service if the state and national governments deprive them of it by continuing unfairly to favor the competitors of the railways. It is the problem of where persons who have been employed by the railways are going to get employment if railway lines, stations, shops and other facilities necessary to their employment are to be abandoned and destroyed. It is the problem of what is going to happen to billions of dollars of railroad bonds for which railway physical property and earnings are the security if a large part of railway facilities and the earnings derived from them are going to be destroyed. It is the problem of how railways are going to make rates satisfactory to shippers if their operating costs are to be increased rather than reduced by changes in the working conditions and wages of their employees.

"By no means do I desire to cripple the railways," says Senator Couzens, "but I ask them to face the realities of the situation." Much more progress would be made toward a solution of the nation's transportation problem if public men would take their own advice and also face the realities of the situation.

We Are Honored By the Business Press

With modesty, coupled with a feeling of pardonable gratification, the *Railway Age* learns of the award to its staff of first prize for the best series of articles published by any business journal in 1931. The award was made by the Associated Business Papers, Inc., which each year acclaims the best performance in three phases of business journalism, to wit, outstanding editorial service to industry, the best single editorial and the best article or series of articles. It is in the third category that the *Railway Age* has won first place. The award was made for the Operating Economy Series of twenty-five articles, which was published during the latter half of 1931. Previously the Associated Business Papers had analyzed this series and sent out a memorandum describing it to all member publications as an example of a useful editorial program for a period of depression.

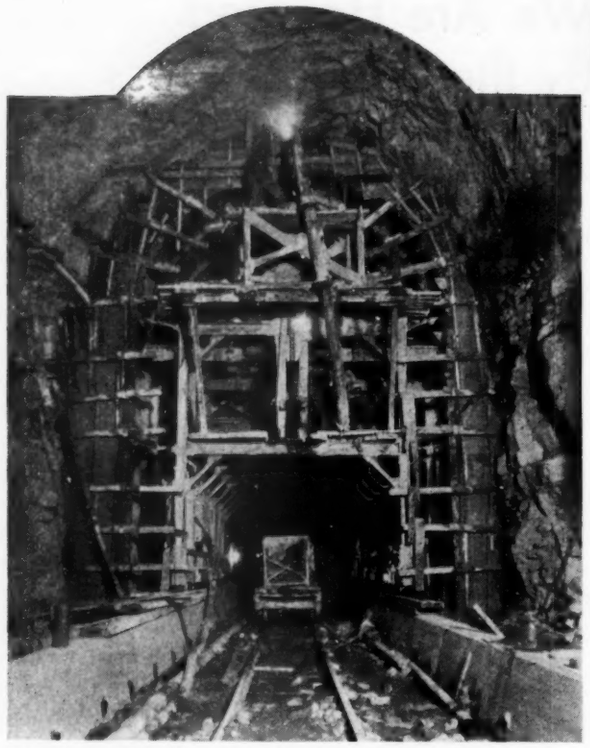
The first prize for the best single editorial was won by another Simmons-Boardman publication, the American Builder. This is a further source of satisfaction to our organization. Despite the fact that the depression has made itself felt so deeply in these two major industries—building and the railways—nevertheless, there remains in them a vitality which, translated into words, wins two out of three of the highest awards in the field of business journalism. The recognition, in our view, goes not only to our papers, but to the industries with which they concern themselves, and the spirit of which they reflect.

The Operating Economy Series, which our readers will undoubtedly recall, was based upon the belief that if the best practice in effect in any field of railroading were applied to the whole industry, large and important economies would result. Each article, therefore, outlined the best practice in each of twenty-five situations—in maintenance of way, in material handling, in shop practice, in accounting and other office work, in signaling, in motorization, in water treatment, in motive power and various other fields. It is believed that this series sets a definite goal, or rather series of goals, for the industry to aim at in the next few years. Details of the awards are contained in a news article published elsewhere in this issue.

EASTERN RAILROADS, after January 1, 1933, will issue free or reduced-rate complimentary or exchange transportation only to directors, officers and employees of railroads, who are carried regularly and in good faith on the payroll of the railroad for the account of which such transportation is requested, and who devote substantially all their working time to railroad business. The announcement of the foregoing states further that "substantially all of the major railroads in Eastern territory" will adopt this policy, which was decided upon as a result of studies made under the direction of the presidents.

Extensive Tunnel Work on the C. & O. Nears Completion

Part I



Shooting Concrete Into a Section of the Lining of Lewis Tunnel from the Special Concrete and Form-Handling Jumbo Employed

AS THE last item in a program of major improvements started in 1923, the Chesapeake & Ohio is now completing a series of tunnel enlargements on its main line crossing of the Alleghany mountains, which is estimated to cost aproximately $9,961,000, and will eliminate the few remaining single-track sections between Cincinnati and Toledo, Ohio, and Clifton Forge, Va., beyond which latter point it already has two single-track main lines or double-track to the eastern seaboard.

The present work, which was started in June, 1930, involves 13 tunnels, both single and double-track, all with close clearances, through which it was desired to provide unrestricted two-track operation. All of these tunnels are located within a distance of 115 miles on the main line in Virginia and West Virginia. On the east slope of the mountain crossing, in order from east to west, the tunnels involved are Moore's, Lake's, Kelly's and Lewis tunnels. The next tunnel is Alleghany tunnel, which is through the divide, and the remaining tunnels involved, in order down the west slope, are White Sulphur, Second Creek, Mann's, Big Bend, Stretchers Neck, Pope's Nose, Blue Hole and Shoo Fly.

Work Was Extensive and Varied

New single-track bores were constructed to supplement the old bores in connection with Alleghany, Lewis, Big Bend and Mann's tunnels; a new double-track tunnel was constructed to secure improved alinement and greater clearances at Second Creek tunnel; the old single-track bore at Stretchers Neck was enlarged for double track; Moore's, Kelly's, Lake's, White Sulphur and Shoo Fly tunnels, all double track but of restricted size, were enlarged under traffic to carry two tracks; Pope's Nose tunnel was uncovered, making it an open cut, and Blue Hole tunnel was abandoned through a line change.

As might be expected in work of such a varied nature, many difficult and interesting problems were encountered and overcome. In the tunnel enlargement work, one of the greatest difficulties was that of maintaining train service with safety and with minimum delay to either trains or the work. That this was a problem is seen in the fact that traffic through the different tunnels has averaged from 40 to 70 trains a day.

Altogether, the work, when completed, will have involved the drilling of 14,858 lin. ft. of new single-track tunnels and of 2,100 ft. of new double-track tunnel, the enlargement of 3,600 lin. ft. of single and double-track tunnels to new double-track section, and the elimination of 849 ft. of existing tunnels. Approximately 3,335,000 cu. yd. of excavation will have been handled in the work, in addition to the placing of approximately 256,100 cu. yd. of concrete in tunnel linings and floors.

Adverse Conditions Completely Corrected

Most of these old single-track tunnels were only 13 to 14 ft. wide and provided vertical clearances of only 15 to 15½ ft. at points 4 ft. from the center-line of track. The old double-track tunnels were equally restrictive to operation, ranging from 26 ft. to 28 ft. in width and, although with tracks spaced as close as 12 ft. center to center, providing vertical clearances of only about 15 ft. at a distance five feet out from the center-line of each track.

As a result of this condition, many shipments had to be routed over foreign lines around the road's own crossing of the mountains; frequently, shipments had to be loaded initially into small cars or transferred to small cars for movement through the tunnels, and, of large importance, although of impossible determination, a considerable amount of traffic was actually lost to the road. In addition to these disadvantages, the old single-track tunnels presented a series of bottle necks on an otherwise double-track line.

With the completion of the present tunnel program, all of these adverse conditions will be overcome. All of the new and enlarged tunnels have been or are being lined with concrete except Shoo Fly. The new single-track tunnels will have a vertical clearance of 22 ft. at a distance of 4 ft. from the center-line of track, and a maximum width of 18 ft., while the double-track tunnels will provide a vertical clearance of 22 ft. at a distance of 5 ft. out from the center-line of each track, and will have a uniform width of 32 ft. Where the new single-track tunnels will relieve the old tunnels of traffic in one direction and, by means of crossovers between the main line tracks, can be used for the passage of even the largest cars or shipments in either direction, the old tunnels are not being enlarged, the expense being considered unjustified at the present time.

While each of the individual tunnel projects involved interesting problems and methods, possibly the most

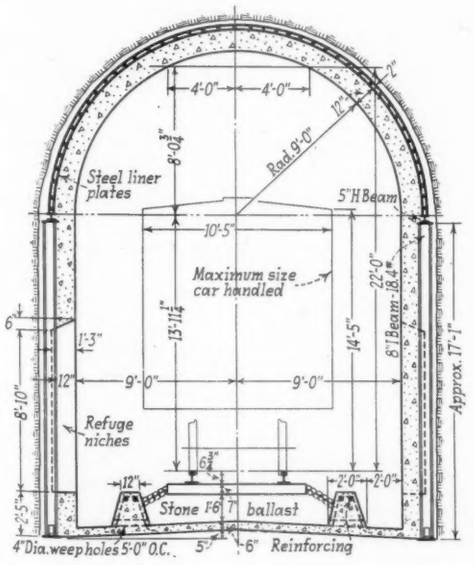
Many difficulties overcome in drilling new bores and in enlarging old ones under traffic, to double-track and increase clearances of main line over the Alleghanies

interesting new tunnel project was that of Lewis tunnel. Here, the old tunnel, which was 4,077 ft. long and practically all on tangent, was single track with a width of only about 13 ft. and a clearance height of only about 15 ft. Rather than attempt to enlarge this bore under traffic, a new single-track tunnel to carry eastbound traffic was driven about 70 ft. south of and parallel with the old tunnel.

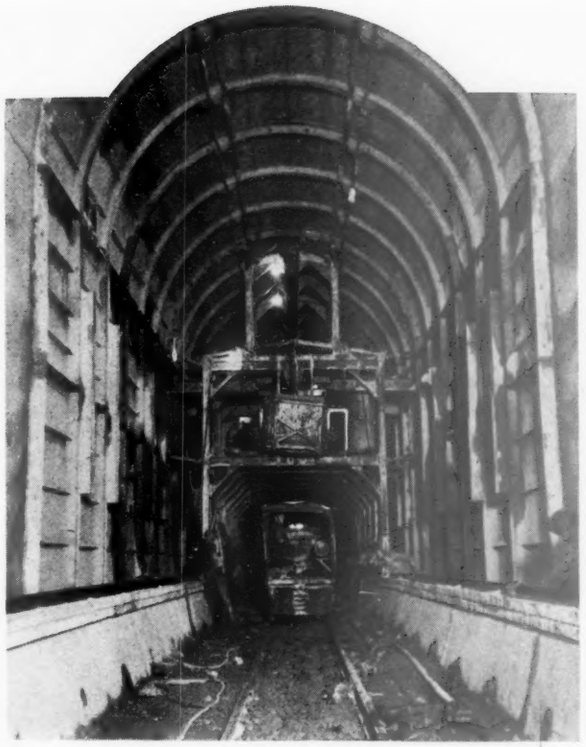
The new tunnel, which is 3,061 ft. long, extends through hard sandstone, which made it unnecessary to provide temporary timbering or other protection against rock falls. However, the tunnel bore itself was reached only by extensive approach grading at each end, largely through solid rock of the same character as that found in the tunnel.

To prevent the delay in starting the tunnel, which would have occurred if the excavation had been held up until access could have been secured at one or both of the approach cuts, the actual excavation was begun near the center of the tunnel by sinking a 9-ft. by 12-ft. shaft, 225 ft. deep, down to the tunnel line, and then driving full-section top headings in both directions. Ordinarily, such a shaft would have been sunk vertically directly over the tunnel, but in this case it was started off line at the top and sloped at an angle of 33 deg. from the vertical to take advantage of a low spot in the ridge.

Using large charges of dynamite to break up the muck well, and loading the break-down by hand into one-yard, side-dump cars, the heading work progressed uniformly in both directions toward the portals. The muck cars were hauled to and from the shaft by electric storage battery motors operating on a narrow-gage track and were pulled up and lowered in the shaft by means of a steam hoist. Using these methods, approximately 4,500 cu. yd. of rock were taken out, and the heading was broken through at the west end just about the time that the west approach was completed.



New Single-Track, Lined Tunnel Section Where Steel Liner Plates Were Used, Showing Details of Floor Construction



Looking Through the Steel Lining Forms in the Lewis Tunnel Showing the Concrete Receiving End of the Jumbo

For this reason and the fact that the east approach was not completed, the entire bench of the new bore was taken out from the west end. In this work, the entire face of the bench was broken down at the same time by placing the shots in horizontal holes drilled at four or five levels in the face. Mucking was done with a 1½-yard shovel operated by compressed air, which loaded the muck into five-yard, narrow-gage, side-dump cars for hauling to the dump.

Since the rock was self-supporting, no temporary timbering was necessary during the tunnel excavation, but later the entire tunnel was lined with concrete and a concrete floor was provided to insure adequate drainage and the most favorable track conditions. The floor consists essentially of a 6-in. concrete slab pitched both ways from the center line of the tunnel, side wall footings, and reinforced concrete ballast shoulders about 16 in. high immediately along side the track structure. The ballast shoulders, which with the side wall footings were constructed ahead of the floor slab, were provided with four-inch weep holes on five-foot centers, whereby any water which may fall on or otherwise enter the roadbed will quickly drain to the side of the tunnel where it will then pass off to one or the other of the portals.

Special Equipment Used in the Lining Work

Lining of the side walls and the floor of the tunnel was done in a rather interesting manner, using a specially designed concrete-handling jumbo and steel forms of a relatively new design. The main feature of this equipment is that the jumbo, which was essentially a movable pouring platform carrying collapsible steel forms, could, after the setting and bracing of a form during pouring operations, be moved ahead to release

and place another form, and could then be brought back to the first form to move it ahead, directly through other forms in place, if necessary.

Essentially, the jumbo was a steel tower-like structure with two platforms, mounted on wheels which operated on rails laid on top of the ballast walls of the floor structure. The lower platform, at an elevation sufficient to permit the passage of men and concrete cars beneath, supported the pneumatic concrete placer for shooting the arch, while the upper platform, just above the spring line of the tunnel, was used for pouring the concrete by gravity into the side walls, and for charging the concrete placer beneath.

By means of an air hoist, the one-yard concrete buckets in which the concrete was delivered to the jumbo in trains, were raised to the pouring platform, one at a time, and dumped into the side wall forms or the pneumatic concrete placer as desired.

The forms, which were 30 ft. long, were of reinforced steel-plate construction with joints at the spring line and in the crown, whereby they could be retracted onto the jumbo and telescoped through other forms already in place. During pouring, the forms were held in position by anchors secured into the rock face as well as by jacks and braces having support on the jumbo. After a section of concrete had been poured and allowed to set for about 10 hours, the jumbo was released, leaving the forms in place, and was used to strip another section of forms and to reset them for further pouring operations. After 36 hours it was brought back to the first set of forms and was used to move them ahead to continue the work.

Using this equipment, including two form sections, one jumbo and one pneumatic concrete placer, one lining crew was kept busy continuously, and, at the same time, the work was concentrated at one point in the tunnel.

Construction of Approaches

The approach work in connection with the new Lewis tunnel was most extensive. The east approach cut is approximately 2,000 ft. long, with a maximum height of about 110 ft. near the portal, and involved about 338,000 cu. yd. of excavation, approximately 95 per cent of which was in hard sandstone. The west approach cut is somewhat smaller, in that it is only about 1,200 ft. long and required only 278,000 cu. yd. of excavation, but here there was about the same percentage of hard rock excavation, and the maximum depth of cutting was 170 ft. In excavating both cuts, the material was taken out in 8 to 12-ft. lifts, using steam shovels, side-dump cars and dinkeys, and, in some cases, automobile dump trucks.

Steel Lining Used in Alleghany Tunnel

The constructing of the new single-track bore to improve conditions at the old Alleghany tunnel was, in many respects, similar in character to the work in the new Lewis tunnel, but there were special features of interest and a variation in methods which deserve mention. The old Alleghany tunnel, which is 4,731 ft. long, was occupied by two tracks, but had an average width of only about 25 ft. and a clearance height of only about 15 ft. The new single-track tunnel was driven immediately north of and parallel with the old tunnel, being similar in size and in other respects to the new Lewis tunnel. After the new Alleghany tunnel is completed, the old tunnel will carry only a single track, thus affording more than adequate side clearances and greatly improved vertical clearances.

Digging the East Approach Cut to Lewis Tunnel, From Which 338,000 Cu. Yd., 95 Per Cent Rock, Were Removed

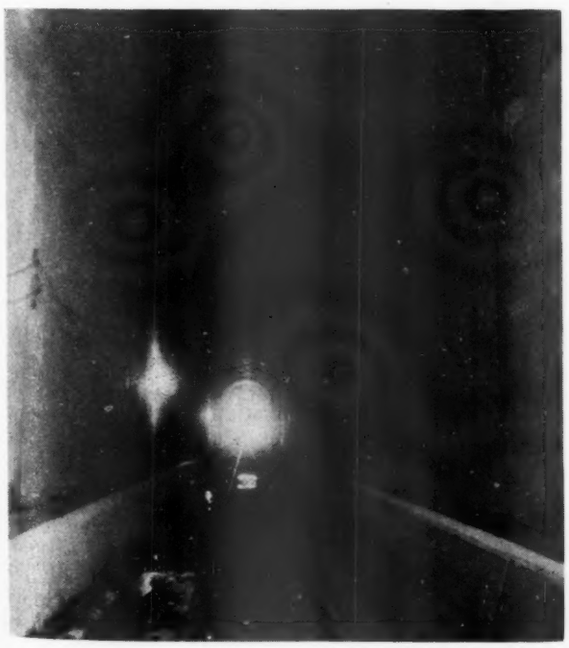
In the construction of the new tunnel, the work was begun at the west end, and, in fact, all but about 1,000 ft. of the heading and bench was taken out from that end. In this work the heading was kept about 20 ft. ahead of the bench face, and the bench itself was broken down in two levels, the lower at about the mid-height of the higher. The shots in the heading were placed in horizontal holes, while those in the bench were placed in vertical holes. The holes in the heading and bench were exploded simultaneously, but a suitable arrangement of delay exploders was employed so that the muck from the bench would come away first and thereby make room for the heading muck. Following each shot, the loose rock was loaded into six-yard Koppel side-dump cars by means of a one-yard, Bucyrus-Erie, full-circle, electric mucking machine. The muck cars were hauled to the portal by means of an electric mule, and from that point were taken to the dump by steam dinkeys.

To within about 3,800 ft. of the east portal, the rock,

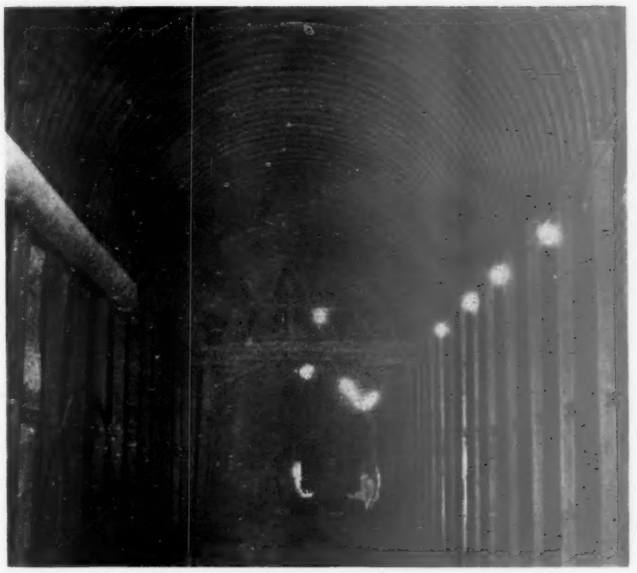
a mixture of sandstone and limestone, was temporarily self-supporting, but was subject to rapid weathering. With some form of protection desirable, the requirements were met fully by the installation of what are termed steel liner plates, fabricated by the Truscon Steel Company. In this construction, the arch is made up of a succession of steel plates, 37 in. long, 16 in. wide and 3/16 in. thick, bolted to 4-in. by 4-in. by ⅜-in. arch bar ribs interposed between succeeding plates. These ribs, which are the strength members of the arch, extend between a 6-in. H-beam wall plate on each side. The wall plates, in turn, are supported on 8-in. I-beam plumb posts set on 4 to 6-ft. centers, the posts on the same side being given lateral stiffness at the center by means of 4-in. I-beam struts placed horizontally between them. All of this steel lining was left in place when the tunnel was lined.

The erection of the steel lining was kept within about 150 ft. of the bench, and was simplified greatly by the use of a specially designed scaffold car constructed on the job. This was essentially a timber structure mounted on flanged wheels, which supported an electrically operated hoist for lifting the steel sections and the packing. Inasmuch as this piece of equipment was maintained always between the bench and the portal, and, therefore, in the path of the mucking cars passing between the bench and the dump, it was designed to span the mucking track, with sufficient under-clearance for the unrestricted operation of the mucking trains.

Another special feature of the steel-handling scaffold car was that it was made and equipped to hoist the empty mucking cars in such a way that they were placed successively at the rear end (that toward the bench) of the mucking train for loading, without the necessity for the installation and moving ahead of a switch and loading track near the mucking operations. In this method, the empty cars ahead of the rear car were picked up in succession, one at a time as the rear car was loaded, and were held clear of the track while the mucking train was pulled forward, following which they were again lowered to the track and coupled into the rear of the train for loading. This method relieved congestion within the tunnel near the working face and precluded a large amount of track work in moving a loading spur ahead as the face was advanced.



A Section of Completed Single-Track Tunnel, Except for Track Structure, Showing Concrete Ballast Walls Provided



View Showing the Steel Liner Plates Used In Several of the Tunnels Instead of Timbering

In the last 1,000 ft. at the east end of the tunnel, a softer rock was encountered, which was not self-supporting. Throughout this section the heading was driven from the east end and required full timbering. With the heading holed through, the removal of the bench continued from the west end, using the equipment already described. Altogether, in both heading and bench, there were approximately 117,500 cu. yd. of excavation and breakage.

Different Methods Used in Lining Work

While the new Alleghany tunnel was lined throughout with concrete and provided with a concrete floor similar to that in the new Lewis tunnel, the equipment used in the lining work was somewhat different. In the Alleghany tunnel, two 40-ft. Blaw-Knox steel forms were used and the concrete was hauled into the tunnel in a series of four hoppers mounted sufficiently high on a standard-gauge flat car to bring their discharge openings well above the springing line of the arch. Three of the hoppers had capacity for four to six cubic yards, while the fourth, mounted on the forward end of the car, had capacity for 13 cu. yd.

Each of the smaller hoppers had a single discharge opening. The opening in one of the hoppers was arranged for discharging the concrete into the wall forms on one side, while the opening in another was arranged for pouring the concrete into the wall forms on the other side. The third of the smaller hoppers was set on a revolving bed so that it could discharge into either side wall. The 13-yd. hopper at the forward end of the car was provided with an end discharge so that, at the forms, it could deliver its load into a 13-yd. V-shaped hopper mounted on a second scaffold car directly over a pneumatic concrete placer. Altogether, approximately 33,000 cu. yd. of concrete were placed in the lining and floor of the new Alleghany tunnel.

The work in the approach cuts to the Alleghany tunnel was only slightly less extensive and difficult than that in the approaches to the new Lewis tunnel, the east cut involving approximately 295,000 cu. yd. of excavation,

while the west cut involved approximately 106,000 cu. yd. of excavation; in both cases, practically all rock.

Three Other New Tunnels Provided

The other three new tunnels provided in the present work are near Hilldale, W. Va., where a new single-track tunnel, 6,152 ft. long, was driven just south of the old 6,560-ft., single-track Big Bend tunnel; at Fort Spring, W. Va., where a new single-track tunnel, 913 ft. long, has been provided to obviate the disadvantages of inadequate clearances in the old 982-ft., double-track Mann's tunnel; and near Rockland, W. Va., where a new double-track tunnel, 2,100 ft. long and of standard dimensions, is nearing completion on a new and improved alinement to replace a section of old line and the present 1,561-ft. single-track Second Creek tunnel.

Of these three tunnels, the work in the Big Bend tunnel was the most extensive, involving 152,900 cu. yd. of excavation in the tunnel proper and approximately 254,000 cu. yd. of excavation in the approach cuts. Holed through only in March of this year, this tunnel is now being provided with a concrete floor and lining, which work is estimated to require the placing of approximately 47,935 cu. yd. of concrete.

The work in the new Big Bend tunnel was similar to that already described in the new Alleghany tunnel, steel liner plates having been used throughout 5,525 ft. of its length, while, because of heavy ground, timbering was necessary for a distance of 627 ft. When completed, the new tunnel will offer eastbound traffic better alinement than the old tunnel and a grade of only 0.15 per cent against eastbound traffic, whereas there is a grade against eastbound traffic in the old bore of 0.4 per cent.

The work in connection with the new single-track Mann's tunnel was not unusual in character, although faulted and unstable rock required the use of timbering throughout approximately 330 ft. of its length. This tunnel, which was completed in May of this year, required 21,700 cu. yd. of excavation in the tunnel itself, approximately 191,000 cu. yd. of excavation in the approach cuts, and the placing of approximately 7,900 cu. yd. of concrete in the lining and floor.

In driving the new double-track Second Creek tunnel, steel posts, wall plates and ribs were used through a distance of 1,450 ft., while timbering was necessary in the remaining length of 650 ft. The excavation and breakage in this tunnel amounted to approximately 99,400 cu. yd., while the excavation in the approach cuts amounted to about 82,000 cu. yd. Approximately 24,000 cu. yd. of concrete will be used in constructing the floor slab and lining.

All of the tunnel work described has been done under contract, the Lewis tunnel work being carried out by the Bates & Rogers Construction Company, Chicago; that in Alleghany tunnel by the Walton Construction Company, Roanoke, Va.; that in Big Bend tunnel by Haley, Chisholm & Morris, Charlottesville, Va., and that in Mann's and Second Creek tunnels by Boxley Bros. Co., Orange, Va.

All engineering in connection with the tunnel improvement work has been done under the direction of C. W. Johns, chief engineer of the Chesapeake & Ohio, with E. G. Rice, district engineer, in direct charge of the field work, represented by the following resident engineers: F. G. Cobb, at the Lewis and Alleghany tunnels; C. B. Porter, at Big Bend tunnel, and G. R. Jenkins, at Mann's and Second Creek tunnels.

That part of the Chesapeake & Ohio's tunnel work, involving the enlargement of six tunnels under traffic, will be described in a subsequent issue.

Introduce Railway Bill in Canadian Senate

INTRODUCING the "Canadian National-Canadian Pacific bill," which puts in legislative form the recommendations of the Canadian Royal Commission on Transportation (Railway Age, October 1 and 22), Senator Arthur Meighen, government leader in the Canadian Senate and former premier of Canada who had much to do with the government acquisition of the Grand Trunk in 1920 and 1921, said last week in Ottawa that the bill could be amended at will by private members, that at present, in any case, it was not a government bill. How important is this legislation and how much interest is manifest in the Dominion in its fate was shown partly by the fact that during discussion of the measure on Thursday and Friday of last week the galleries of the Senate were packed. There is no disposition to rush the legislation. It will be debated, on second reading motion, for some days in the Senate. It will then be referred to the Senate Committee on Railways and Telegraphs.

When that committee has finished with the bill it will go back to the Senate as a whole for final passage and then go to the House of Commons. In that branch of Parliament there will be a hot fight, the Liberals being disposed to score the government for its treatment of the Canadian National and its personnel. House consideration of the bill, however, is not likely to begin until the winter sittings of Parliament, which will commence about the first week of February. Answering a question in the House last week Premier R. B. Bennett said it would be up to the House to decide whether or not it wanted to proceed with the bill before the late fall adjournment, but the probability is it will await the winter sittings.

Senator Meighen opened the debate on the bill in the Senate, when introducing the measure, and on Friday of last week Rt. Hon. George P. Graham, acting Liberal leader in the Senate and Minister of Railways and Canals during a large part of the last Liberal government, was the sole speaker in Friday's sitting. The debate was resumed on Thursday of this week by former Liberal Minister of Labor Murdock, now an officer in one of the international railway unions.

Following the recommendations contained in the report of the Royal Commission the act is divided into three parts. Part one deals with reorganization of the Canadian National. It provides for replacement of the board of directors by three trustees, one of whom, the chairman, will devote his full time to the work, and whose tenure of office will be seven years. Persons who have during the preceding five years held political office are ineligible. The salaries are not fixed in the act.

The trustees will have full power to control the Canadian National without consultation with the shareholders or with the government, and will appoint managing officers including a president who will be responsible only to the trustees.

Part two deals with co-operation between the Canadian National and Canadian Pacific and orders that the two systems take whatever steps are desirable to eliminate, consistently with the proper handling of traffic, unnecessary, wasteful or uneconomical services, to avoid duplication of services, and to make joint use of facilities wherever advisable. No authority for any amalgamation of companies is given.

Part three sets up a tribunal to deal with disagreements between the two systems. This body will be composed of the chief commissioner of the Board of Railway Commissioners for Canada, who will be presiding officer, and one representative each from the Canadian National and Canadian Pacific. In disputes of major importance either company may ask the president of the Exchequer Court of Canada to appoint two additional members to the tribunal. In the event of any conflict between an order of the Board of Railway Commissioners and the tribunal, the order or decision of the tribunal shall prevail. Appeal from its judgment will be to the Supreme Court of Canada.

Senator Graham, in his remarks, questioned the advisability of "depriving the shareholders" of the C. N. R. of the power to appoint directors. He also paid tribute to the former president of the system and asked that employees be assured of their jobs.

"To my mind," he said, "the greatest thing that Sir Henry Thornton did in all his career was the combining of these two staffs and the creation of such an esprit de corps as never existed on the old Grand Trunk and was never surpassed on any railway in the world. These employees feel that owing to the necessity for strict economy, which we all know exists at the present time, their positions are not secure. I would advise careful consideration before any body of trustees is invested with powers that might be the cause of faithful employees on both lines working under the daily dread that their next pay cheque may be the last. Such a feeling destroys efficiency altogether, and it is not fair to the employees, their families and the executives that it should be allowed to continue."

Of the acting president of the C. N. R., S. J. Hungerford, he said: "He is honesty personified, there is no question about that. How he succeeds will depend, of course, upon how he is supported, and that is one reason why I am afraid of giving too much power to any board of trustees."

Dwarf Signals for Automatic Blocks on P. M.

THE Pere Marquette has recently installed automatic block signals on four miles of double-track line extending from the Fort Street Union station in Detroit, Mich., to Delray Junction interlocking. As a part of the installation, the old mechanical interlocking at the station was completely overhauled, numerous improvements being made. This union station is used by the passenger trains of the Pere Marquette and also of the Wabash, the Baltimore & Ohio, and the Pennsylvania, a total of 36 scheduled trains arriving and leaving daily.

The line from the station to Delray Junction handles all these trains in addition to numerous freight-train and switching movements. Throughout this territory, there is a freight track on each side of the main line, these tracks being used mostly as switching tracks from which numerous turnouts lead to the freight houses and industries in this area. In the territory signaled, there are 10 crossovers between the two main tracks and 18 crossovers leading from a main track to one of the freight tracks. The insulation of these turnouts was one of the major items of expense in the signaling project.

On account of the numerous street crossings and the general congestion, train speeds are limited to 30 m.p.h. The automatic signals were installed not only to reduce delays and keep trains moving but also to increase the safety of through-train and switching movements.

Dwarf Signals Used

On account of the line being four-track, it would have been necessary to construct several expensive bridges if high signals were used, an outlay which would no doubt have indefinitely postponed the job. After

Color-Light Dwarf Signals Are Used

taking into consideration the cost of signal bridges and the low speed limits, it was decided to use search-light type dwarfs for automatic block signals. Each signal is set on a concrete foundation so as to bring the center of the lens 21 in. above and 4 ft. 2 in. to the right of the rail.

After these signals had been in service for a few months, inquiry was made of enginemen as to their opinion of the new signals. They all stated that the dwarf signals were more easily seen than signals on overhead bridges and furthermore were in their regular line of vision when watching the track ahead. Another point mentioned by some of the enginemen was that the dwarf signals did not blind them at close range as much as signals at cab height on masts at the side of the track. A disadvantage of the dwarfs is that a person walking along the track may obscure a signal from the view of an approaching train. However, this has not proved to be as much of an objection as had been expected.

Simplified Control Circuits

The signals are located approximately 2,500 ft. apart, one track circuit extending from signal to signal. The track relays are the 2.8-ohm retained-neutral type. The feed to the track circuit in the rear is polarized by using the front or back neutral contacts while the local signal is controlled through two other neutral contacts and the polar contacts to get the yellow or green indication. The signal is approach-lighted through a 0.39-ohm relay, the coils of which are in series with the track circuit feed in the approach. Therefore, the control circuits are served by the track circuits without line wires. So far as is known, this is the first extensive

installation of automatic signals using the new polar relays incorporating the retained neutral principle. One important advantage of these relays is the snappy operation of the search-light signals from yellow to green without getting a flash of the red.

A special feature is an arrangement whereby the maintainer can use the approach-lighting circuit to light a signal that is being tested without shunting the track circuit.

A special resistance is connected to one of the track feed wires, the other side being open but connected to terminals so mounted that the maintainer can complete the shunt by placing a key across two terminals. The amount of resistance required in one of these coils varies with local track conditions and the length of the circuit, but most of the coils used on this installation are about 0.06 ohms.

The signals, relays, etc., used for the new automatic blocks were furnished by the General Railway Signal Company, while the rectifiers and the switch circuit controllers were furnished by the Union Switch & Signal Company. The problems of engineering design and construction were handled by the Pere Marquette signal construction forces.

Freight Car Loading

WASHINGTON, D. C.

THE record of steady increases in revenue carloading since August 6 in each week except that including the Labor Day holiday was broken in the week ended October 22, when total carloadings amounted to 642,173 cars, a decrease of 8,405 cars as compared with the week before. This is ascribed partly to bad weather in the South and Northwest. This apparently means that the peak for this year was reached in the week ended October 15, which was two weeks later than the peak in any of the previous four years.

As compared with the corresponding week of last year this was a reduction of 127,500 cars, or 16 per cent, and as compared with 1930 it was a decrease of 317,319 cars. However, the loading for the four weeks ended October 22 has amounted to 2,540,462 cars, an increase of 20 per cent as compared with that for four weeks in June, which was 1,966,355. For four weeks in September the total was 2,244,599 cars.

Loading of l.c.l. merchandise increased 1,297 cars as compared with the week before, and all other commodity classifications shared in the decrease, although grain-loading showed a drop of only 87 cars. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

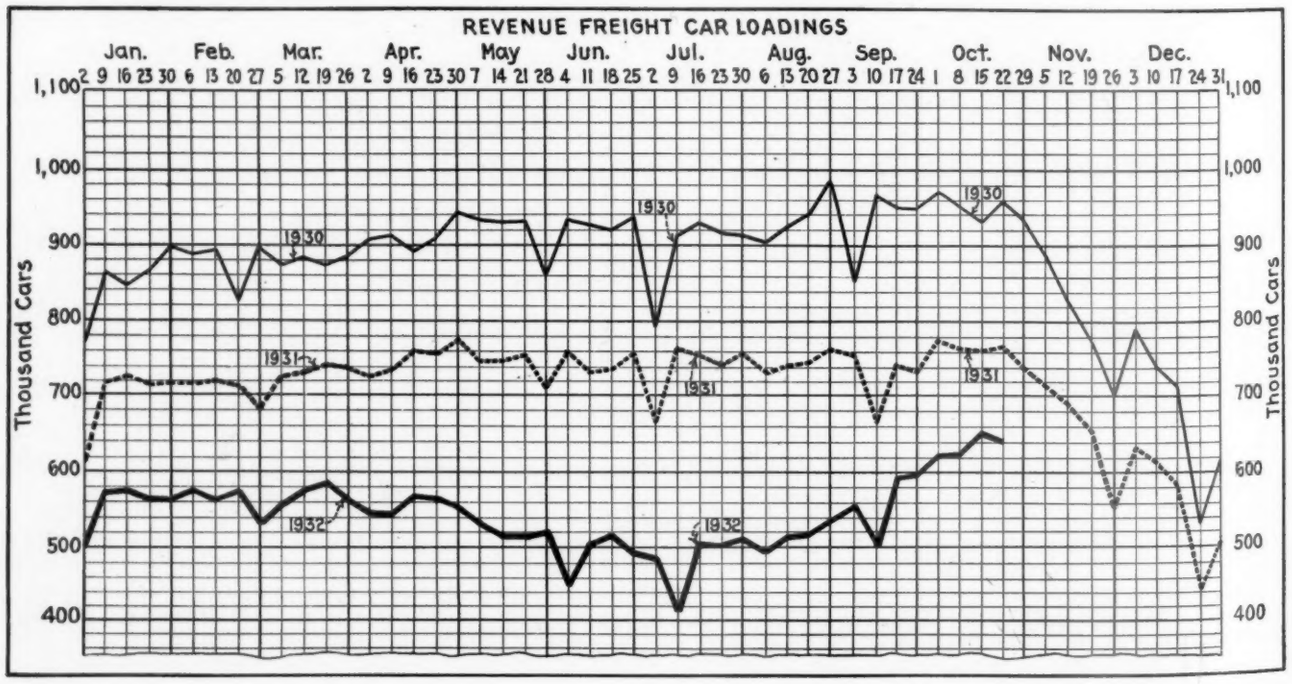
Revenue Freight Car Loading

Week Ended Saturday, October 22, 1932			
Districts	1932	1931	1930
Eastern	139,873	170,961	209,437
Allegheny	113,080	149,949	182,121
Pocahontas	47,594	51,137	57,021
Southern	92,123	109,436	138,538
Northwestern	76,355	97,334	135,522
Central Western	112,176	124,248	157,582
Southwestern	60,972	66,608	79,271
Total Western Districts	249,503	288,190	372,375
Total All Roads	642,173	769,673	959,492
Commodities			
Grain and Grain Products	32,984	40,163	41,612
Live Stock	23,696	30,735	35,369
Coal	140,805	152,821	192,181
Coke	4,838	5,733	9,218
Forest Products	18,573	23,822	38,887
Ore	6,283	16,924	36,091
Merchandise L.C.L.	178,744	214,712	240,055
Miscellaneous	236,250	284,763	366,079
October 22	642,173	769,673	959,492
October 15	650,578	761,596	931,105
October 8	625,636	763,818	954,782
October 1	622,075	777,712	971,255
September 24	595,746	738,036	950,663
Cumulative total, 42 weeks	22,895,145	31,016,794	38,194,580

Car Loading in Canada

Carloadings in Canada for the week ended October 22 amounted to 49,875 cars. This was an increase over the previous week, which contained a holiday, but was less than the usual seasonal increase, and the index number dropped from 67.36 to 64.22.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada:		
October 22, 1932	49,875	18,935
October 15, 1932	46,774	18,143
October 8, 1932	51,959	19,034
October 17, 1931	56,129	22,531
Cumulative Totals for Canada:		
October 22, 1932	1,773,765	799,204
October 17, 1931	2,059,326	1,067,846
October 18, 1930	2,585,384	1,403,577



Shows Evils of Unregulated Trucking

California Railroad Commission reports on its investigation of transportation conditions in state—Corrective measures suggested

THE so-called "wildcat" motor truck operator, free of regulation, is the chief cause of disturbed conditions, not only in the transportation field but also in the marketing of building materials and of fruit and agricultural products throughout California. By cutting rates below actual costs of operation, these itinerant truckers are gradually destroying the established means of transportation. The fact that the railroads are losing their short-haul freight traffic may force them to increase rates on the long-haul movement of fruit from California to eastern markets—an action which would be disadvantageous to the entire state. These conclusions and many others are contained in a decision, issued on October 10, by the Railroad Commission of California. The decision is based on an investigation of all California transportation agencies, instituted by the commission on December 16, 1931. The report of the investigation, the decision and several appendices have been issued in a booklet of 66 pages. A summary of certain sections of this booklet, together with quoted abstracts of other portion, follows:

The reasons for the investigation were the radical changes taking place in transportation and the very apparent unsettled state in which transportation agencies and general business found themselves as a result of these conditions. The purpose of the investigation was to find the facts and suggest remedies and, as stated by the commission at the opening hearing, "upon the completion of this investigation either to take such positive regulatory action—even though it be of a most drastic character—that is necessary and possible under the existing law or to make definite recommendations for legislative action, or both, as may be warranted in the general public interest."

Twenty-four hearings were held in 11 cities of the State, at which there were 125 appearances, and 241 witnesses testified, representing shippers and receivers of freight, chambers of commerce, shipping organizations and all types of legally operated transportation agencies. A questionnaire was sent to 12,418 shippers and receivers of freight. The investigation covered all phases of transportation, including the following carriers: Railroads, certificated (regulated) trucks, uncertificated (unregulated) trucks, coastwise steamers, inland waterway vessels and express companies.

An abstract of the report follows:

The Transportation Picture

The hearings and the return to the questionnaire developed a very complete picture of the growth in California of each of the different classes of transportation; of the part that each now plays; of the changes that are now taking place in each; of their respective proper economic fields; of the general disastrous result that follows the invasion by a transportation agency of a field in which it does not economically belong, and of shifting trade centers and changing methods and conditions of business attributable to changing transportation conditions. Dominating all was the struggle, not for supremacy, but for existence of regulated carriers, both land and water, attacked upon all sides by the unregulated.

Relative Trucking Use of Highway by Various Classes of Carriers

	Units				Capacity		
	Trucks	Trailers	Total	Per cent	Aggregate tonnage	Per cent	Average tons per unit
Carriers for hire certificated	1,158	716	1,874	6.02	8,478	9.60	4.5
Carriers for hire not certificated	12,317	4,654	16,971	54.50	53,241	60.28	3.1
Carriers not for hire	11,335	957	12,292	39.48	26,604	30.12	2.2
Totals	24,810	6,327	31,137	100.00	88,323	100.00	2.8

As one effect of the business depression, carriers of all classes, regulated and unregulated, find it difficult and in some cases impossible to make both ends meet. While their difficulties are in part due to declining tonnage—the result of depressed business—there are other reasons to which their distress is due which must be remedied before stability can return to the industry. These causes may be summarized as follows:

(1) Carriers performing essentially the same transportation service, one class being under strict state regulation and another class without regulation; one class supervised and controlled as to its service, schedules and rates, and prevented by law from bidding freely in an open market for business, the other unlimited in all these respects; one class required to show financial responsibility before engaging in business and then bound to continuity of service; the other obligated to nothing.

(2) A rapid development of auto truck transportation following highway construction, with a lack of recognition and knowledge both upon the part of the railroads and truck operations as to the field which this class of transportation can economically serve.

(3) The failure properly to study the particular transportation needs of particular industries.

(4) An excess of transportation facilities, due in part to reduced freight volume and in part to the entry into the field of truck operators, attracted there by the opportunity to enter it practically without a capital investment, and to the advantage over competitors that freedom from regulation gave them.

Innovations in Transportation and Business Caused by the Motor Truck

With the flexibility of truck operations has come store-door pick-up and delivery and a distribution in certain lines of business, such as building materials from point of origin or some general center to the point of consumption, as to a house under construction. In this second case the tendency is toward the elimination of intermediate distributing centers. The evidence seemed to justify economically this new method of distribution, but its social advantages were seriously questioned. On the other hand, in other lines of business, as in groceries, the tendency is to split up the intermediate distributing centers into smaller, widely scattered units which subsist by hand-to-mouth buying and maintain themselves on a very small capital investment. And, then, there is the peddler truck suddenly achieving undue eminence, operating with or without regularity and destroying all stability in the produce and other markets, without providing the consumer with an assured supply or dependable quality. And lastly and of portentous significance is the absorption by the truck, and particularly the unregulated truck, of an increasingly large volume of the short-haul business of the railroad, thus casting an increasing burden on their long haul of transcontinental freight, and thereby handicapping California products,

and particularly those of the farm, in the eastern markets. The short-line railroads—which, of course, have no local long-haul income to sustain them—are in a particularly deplorable condition.

The effect of all this upon the carriers and upon agriculture, industry and business generally may be summarized as follows: Enormous freight losses, resulting in greatly decreased payrolls and lessened service; the development of a freight solicitation condition under which these carriers are greatly handicapped by reason of their inability to change rates at will, a privilege which uncertificated trucks enjoy and an advantage that they avail themselves of to the utmost; and the forced reduction of thousands of rates, many below maximum reasonable rates.

The Unregulated Truck

The chief cause for the disturbed condition of transportation is in the operation of uncertificated or unregulated trucks. The evidence is conclusive that an enormous volume of their business is conducted at less than the cost of service. Their rates vary from day to day and are not uniform as between shippers or communities. To get business from regulated carriers, many of them offer a reduced time in transit that can only be met by violating the highway speed laws. Many of them disregard weight, height and length limitations and other provisions of the Motor Vehicle act. A summary of the things they do which regulated carriers cannot do follows: (a) Discriminate between persons and places; (b) make rebates; (c) grant secret rates; (d) change rates at any time without notice; (e) disregard reasonable hours of continuous service of truck drivers, thus making the operation unsafe for themselves and the public; (f) disregard other safety precautions, such as those relating to shipment of explosives and dangerous articles. They have disastrously affected the prosperity of regulated carriers, curtailed the ability of the latter to serve the public, and at the same time have not prospered themselves, as indicated by the continued change in truck ownership and by the lack of continuity in operation.

Appendix XVI of the opinion is a statement prepared by Prof. Ford K. Edwards, which includes a discussion of this phase of the problem, as follows:

> It is not in the public interest that any individual carrier or group of carriers should operate for rates which do not meet the cost of production. In other words, any carrier for hire which is not self-supporting cannot justify its existence on the highway and should be removed for the protection of the investors, the remaining carriers and the public.
>
> Assume the following hypothetical case, which, judging from testimony presented by truck dealers before this commission, is typical. A truck driver decides to go into business for himself. He saves $500 out of his wages over a period of time and borrows $300 from a friend. With the $800 he makes a down-payment on a truck and starts operation. But he finds competition severe and it is difficult to get business at a fair charge. He, therefore, starts under-quoting his competitors and working long hours for a small wage. As soon as he commences cutting his rates below the cost of providing the service, the final result may be foretold. In six months or so he surrenders the truck to the dealer through inability to meet his payments. The dealer may lose another $200 in reconditioning the truck and reselling it. A total of $1,000 has been lost during the period.
>
> The freight shipped on this truck during the six months never paid its cost of handling. It was as truly subsidized to the extent of $1,000 as if it had moved by rail, water or otherwise and the truck operator and the truck dealer had paid a portion of the freight charges. Such an operation is parasitical in nature—it exists only because of a flow of capital from outside the industry and which is consumed in the unprofitable operation.

General Business Wants Stabilization

Continuing, the report proper reads:

While a few shippers were of the opinion that they benefited by the very low and noncompensatory rates they were able to secure under present conditions, the overwhelming majority of the witnesses for industry, agriculture and business, and the shippers and receivers of freight to whom the questionnaire was sent were emphatic in their desire to see transportation stabilized. The present condition, so far as discrimination between persons and communities is concerned, was likened to that prevailing on the railroads before regulatory legislation was enacted.

Business stability without adequate transportation stability was declared by many witnesses to be impossible of attainment. Industry and agriculture were both said to be suffering from unsettled markets, resulting in part, at least, from unsettled transportation. There was much evidence to show that heavy losses were sustained and extensive frauds perpetrated upon farmers by the wholesale entry of financially irresponsible truck operators into the transportation field.

There was much evidence that the transcontinental railroads are the most important to California of present transportation facilities; that these roads are in a serious financial condition; that this condition is due in part to inroads on their business by unregulated carriers; that the crippling of these roads or the necessity of increasing rates on long-haul interstate traffic would work untold injury to California agriculture and to the public at large.

Statement Showing Total Carload and Less Than Carload Tonnage Hauled via the Various Forms of Transportation

(1) Kind of transportation	(2) L. C. L. (tons)	(3) L. T. L. (tons)	(4) C. L. (tons)	(5) T. L. (tons)	(6) Total (tons)	(7) Per cent
Railroads	2,698,625		9,360,785		12,059,410	63.55
Steamships	160,355		279,640		439,995	02.33
Express	15,456		28,739		44,195	00.24
Certificated truck		181,196		393,387	574,583	02.88
Non-certificated truck		261,611		2,033,400	2,295,011	12.09
Privately-owned truck		610,016		2,942,784	3,552,800	18.72
Forwarding companies	13,218		2,791		16,009	00.09
Totals	2,887,654	1,052,823	9,671,955	5,369,571	18,982,003	100.00
Rail and Truck Movement						
Railroad	2,698,625		9,360,785		12,059,410	65.26
Certificated truck		181,196		393,387	574,583	03.10
Non-certificated truck		261,611		2,033,400	2,295,011	12.42
Privately-owned truck		610,016		2,942,784	3,552,800	19.22
Totals	2,698,625	1,052,823	9,360,785	5,369,571	18,481,804	100.00
Consolidated Truck Movement						
Certificated truck		181,196		393,387	574,583	08.94
Non-certificated truck		261,611		2,033,400	2,295,011	35.73
Privately-owned truck		610,016		2,942,784	3,552,800	55.33
Totals		1,052,823		5,369,571	6,422,394	100.00

Explanation of abbreviations—C. L.—Carload; L. C. L.—Less than carload; T. L.—Truckload; L. T. L.—Less than truckload.

Statement Showing Total Tonnage Handled in 1931 via Certificated, Non-Certificated and Privately Owned Trucks Segregated According to Distance of Haul

(1) Miles hauled	(2) Tons	(3) Per cent of Total reported
50 or less	3,038,148	61.34
50 to 100	1,046,980	21.14
100 to 200	597,440	12.00
200 to 300	197,790	03.99
300 to 400	39,469	00.79
400 to 500	29,944	00.60
Over 500	3,978	00.08
Total tons accounted for	4,953,755	100.00

The Wildcat Carrier

As heretofore stated, the crux of the whole situation is the unregulated or uncertificated operator. While the shipper-owned carrier and the genuine contract carrier are in part responsible, the main culprit is the "wildcat" operator, who holds out his service to any or all of the public and, at the same time, using alleged contracts and other pretexts as a defense, denies that legally he is a common carrier. If "wildcat" operators can be curbed, a large part of the transportation problem can be solved. The California Highway Patrol is authority for the statement that of the total traffic now on California roads

90.1 per cent is in passenger cars and 9.9 per cent in trucks. The truck is here to stay. It plays an increasingly important part in the transportation field. It is so new that its functions and limitations are not yet thoroughly determined. It has the right to make its own place subject to regulation. The transportation system is in a constant stage of evolution, and the public is entitled to the most efficient means of transportation as they are developed.

The diversion of freight from the railroads to the unregulated truck has resulted in a heavy decrease in taxes paid by the former to the state. As an illustration, the tax payments by the Southern Pacific Company alone from March 1, 1930, to March 1, 1931, were decreased on this account $900,000. Probably a small part of this diverted freight was carried by certificated truck lines, and a gross receipt tax was paid on it by them instead of by the railroads. But there is no doubt that most of the freight went to "wildcat" operators and paid no gross receipt tax whatever to the state.

It is strenuously maintained by the trucking interests that the tax they pay upon their property is at a heavier rate than the property tax paid by the railroads. On the other hand, the railroads contend that even if this is true, trucking interests should pay something more than a mere tax on their trucks, by way of a payment or charge for use of the highways, so that the competitive agencies would be on an equality with respect to the gross receipts which they must turn over to the state.

Remedies Suggested by Witnesses

Many suggestions were made as to the remedy for these conditions. These may be summarized as follows:

1. Equality of opportunity for different classes of transportation performing essentially the same service through the imposition of a substantial equality of regulation. Matters relative to equality of taxation, working hours, bonding and crating requirements, etc., were emphasized by many witnesses in this connection.

2. Adequate enforcement of present laws: One recommendation repeatedly advanced was the establishment of a board of inquiry and enforcement within the Railroad Commission.

3. Closer co-ordination of the efforts of present state agencies charged with authority over transportation agencies, particularly the Railroad Commission, the State Board of Equalization, and the California Highway Patrol. More adequate enforcement of speed and weight laws governing trucks was asked.

4. Limitation of truck lengths and the elimination of trailers.

5. Lightening of regulation upon the regulated carriers, and in particular a lessening of the period required to make changes in rates, if equality of regulations can not be achieved.

6. A greater degree of physical co-ordination of railroad and truck transportation.

Conclusions

Regulation by the state is for the protection and welfare of the public and only incidentally for the protection of the regulated business. It has its inception in the need of protecting the public against the oppression and exactions of monopoly and is applied particularly in those cases where monopoly is clothed with a public interest. This power of the state is also involved where a business is clothed with a public interest, even though it is not strictly a monopoly but by reason of position has an advantage of bargaining power over the public. It would be difficult today to cite a case of a transportation agency which is a monopoly or which has an advantage over the public in bargaining power with respect to intrastate traffic. Hardly any business is more intensely competitive than transportation but this very change in its position has perhaps brought more vividly to view the public interest with which it is clothed. Because of this public interest, regulation by the state is necessary.

When transportation was a monopoly, discrimination between persons and places, excessive rates, rebates, inadequate service and other abuses were corrected by state and federal regulation, but the regulation was over all transportation agencies. The advent of new transportation agencies and the shifting of transportation from the rail and the water to the truck and the highway have brought about changed conditions which the law does not adequately cover. The very evils which regulation is intended to correct have returned to even more vicious form under the condition of the law where some of the transportation agencies are rigidly regulated, some are or may be partly regulated and some are not regulated at all. The public interest demands that regulation be extended alike over all or that it be withdrawn from all and the law of the jungle be given full and equal play.

Which of these two courses should be pursued is a matter of state policy to be determined by the legislature. If one course is deemed by that body to be the one which should be taken, there are various provisions of the Public Utilities Act and related acts dealing with common carriers which should be repealed or revised so that the hand of public authority should rest as lightly as possible upon those agencies of transportation which are now supervised and controlled in so many aspects of their business. The other course, to wit, the extension of processes of regulation to cover alike, as nearly as may be, all agencies of transportation, involves many practical and legal difficulties. Because of the preponderant belief of the shipping public, as disclosed by this proceeding that this is the road which should be taken, it seems appropriate that the difficulties to be encountered and the commission's judgment as to the best means of surmounting them should be considered at some length.

The public interest demands that contract carriers operating over the public highways should be required to procure certificates of public convenience and necessity and that legislation to this end should be enacted, assuming that such may be done constitutionally. It is, of course, recognized that the constitutionality of such legislation is questioned and has not yet been definitely determined by the Supreme Court of the United States. In the absence of legislation requiring certificates of contract carriers it is doubtful if regulation will protect the public against the evils that flow out of discrimination between persons and places, rebates, secret rates and violent rate fluctuations.

If it should be determined by the Supreme Court that a state may not constitutionally deny the use of its highways to contract carriers, legislation should be enacted requiring a permit or license from this commission or other state authority. An adequate permit system should include provisions (a) requiring formal applications and hearings; (b) requiring a showing of financial responsibility and safe equipment; (c) requiring that public liability insurance or surety bonds be filed to protect third persons and their property and the property of the state; (d) requiring a showing by the applicant that the highways which he proposes to use are in such condition as to construction and use as to permit the use sought to be made thereof by the applicant without unnecessary wear and tear thereof and unnecessary or unusual inconvenience and hazard to other users; (e) requiring limitations in any permit issued as to the highways over which it might be used; as to the commodities or classes of commodities that might be carried; and, where necessary, requiring limitations as to the weight of load and truck and size and speed of truck less than those prescribed by law; (f) limiting hours of labor of drivers; (g) requiring them

to carry on their trucks at all times copies of the contracts upon which the operation is based; (h) including a legislative declaration that any contract for the transportation of property for hire by motor truck is void as against public policy unless the charge for such transportation is not less than a reasonable charge to be determined by the Railroad Commission. The use of the public highways for such transportation should be prohibited except upon condition that the carrier exact such charge as a minimum.

A certificate should not be required of contract carriers operating within a radius of 30 miles beyond the corporate limits of any city or village or shipping point, provided the operation is not between cities, villages or shipping points. This exception will protect merchants in their right to deliver goods in territory tributary to their places of business and will safeguard farmers and orchardists from delay during peak time movements of crops from farms to shipping point and from orchard to cannery.

More Drastic Measures

If it is believed that the foregoing recommendations will not accomplish the result sought and there seems no other way to provide for the protection of business, adequate public service and proper enforcement of the law, then the legislature should give serious consideration to a more comprehensive method of bringing order out of our transportation chaos. If commercial and shipping interests are to be stabilized, then definite rates and permanent transportation facilities must be open on an equality to the public. If proper and adequate transportation facilities are to be provided, transportation companies must be protected in their service to the public. The operation of the unregulated carrier on the highway is the basic trouble in the problem before us. An adequate and sure way to accomplish these ends, may be to take the seemingly drastic step of prohibiting private carriers for hire from operating on the public highways. This would leave the publicly built and owned highways open to the pleasure car, the privately-owned and operated truck and certificated common carrier.

M-K-T. Fuel Bill Takes Big Drop

THE cost of fuel charged to locomotive operation on the Missouri-Kansas-Texas was only $1,814,625 in 1931, as compared with $7,921,368 in 1920, a reduction of $6,106,743, or 77 per cent, while the fuel consumption in 1931 amounted to 103.62 lb. per 1,000 gross ton miles, as compared with 204.72 lb. in 1920, a reduction of almost 50 per cent. Fuel consumption in the month of June of this year was only 84.0 lb. per 1,000 gross ton miles. The steadily-increasing reduction in fuel costs, while influenced by decreases in prices and also by reduced traffic since 1929, is, in large part, the result of converting the road's locomotives from coal to oil burners, the purchase of oil under favorable contracts and the activities of the operating and mechanical departments in improving fuel performance, according to G. E. Scott, purchasing agent.

Prior to 1920, the Missouri-Kansas-Texas used coal exclusively, but it was led by the rising cost of coal to make a survey of its Texas lines with a view to changing from coal to oil. The study, which took into consideration all of the factors entering into the costs of using both coal and oil, including the cost of conversion, erection of storage tanks, interest on equipment, etc., indicated that an annual saving of $1,500,000 could be effected on the Texas properties alone by the use of oil instead of coal. A five-year contract for a minimum of 10,000,000 and a maximum of 15,000,000 bbl. of fuel oil was made in August, 1919, which was sufficient to supply the entire Texas lines with oil. Delivery of the oil started in January, 1920. As the conversion of coal-burning engines progressed, the use of oil increased steadily until the end of 1920 when all changes had been made, and the Texas lines were being operated exclusively with oil-burning locomotives.

It was then decided to convert the Wichita Falls & Northwestern line for oil burning as a survey showed that a further saving of $250,000 per year could be realized in that territory. In the latter part of 1921, the economies accomplished through the use of oil on both the Texas and the Wichita Falls lines led to a decision to convert the lines north of the Red river from coal to oil. Thus, the entire system was equipped for oil with the exception of 189 miles between Baden, Mo., and New Franklin.

The Missouri lines, excepting that section between New Franklin and Baden, continued to use oil until the summer of 1925 when the price of oil advanced to a point which led to the decision to revert to the use of coal between New Franklin, Mo., and Denison, Tex. The change was made in 1926 and 1927. The price of fuel oil was then $1.36 and $1.46 per bbl. With subsequent reductions in oil prices, oil was again substituted for coal.

Fuel Campaigns Help

During the year following the partial conversion of locomotives to oil burners, the fuel bill was still nearly $6,000,000. A comprehensive fuel-saving campaign was then begun and has been rigorously prosecuted since, with the result that each year has shown better results. Monthly performance reports are issued, showing the consumption on various unit bases; meetings are held frequently with enginemen, shopmen, and other employees to discuss ways and means of improving performance.

The accompanying tabulation shows the costs of oil and coal for the years 1920 to 1931, inclusive, and the fuel performance for the same years.

Year	Cost of fuel charged to locomotive operation	Lb. per 1,000 g.t.m.	Average weight of train
1920	$7,921,368	204.72	1,206
1921	4,609,464	182.07	1,281
1922	4,099,941	186.97	1,307
1923	4,208,299	174.06	1,463
1924	3,788,270	135.09	1,676
1925	4,251,042	123.43	1,793
1926	4,524,077	117.36	1,825
1927	4,178,065	116.22	1,910
1928	3,749,466	110.11	1,981
1929	3,146,021	110.10	2,009
1930	2,463,524	104.78	1,904
1931	1,814,625	103.62	1,696

After the use of oil was successfully established, the M-K-T. began operating some of the longest continuous runs to be found in regular passenger service; long runs were also established in freight service without any reductions in tonnage or speed. Through the institution of these long runs, the number of locomotives in service has been reduced 10 to 20 per cent, and the use of fewer locomotives has accordingly helped to reduce roundhouse expense by eliminating the intermediate terminal layovers. Fewer engines in service have also brought about a reduction in maintenance costs.

Graphs Simplify Control of Mechanical Operations*

Their use permits precise visualization of situations and facilitates the efficient arrangement of organization and program

By Lawrence Richardson
Chief Mechanical Officer, Boston & Maine

THE use of graphical charts has increased to such an extent that they are even more generally used than figures and tables. The eye can understand and absorb at one glance information that would require at least ten times longer to grasp from statistics and tables.

Graphical methods in railroads have been extended to shops, enginehouses and car inspection points. With charts and graphs available, it is possible to visualize operations in a surprisingly short time that would otherwise take weeks of extended observations and long hours of work. It is uncanny how easy it is to see, in this way, when congestion occurs, man power necessary and possible ways of easing tight situations. With this method it is often possible to correct or improve conditions without the necessity of a personal inspection.

When capital expenditures are curtailed, it is even more necessary to devise methods and formulate plans to study all the possible economies. Usually by mapping out the problem graphically, whether it be a straight-line method of handling material in a shop, the spotting of freight cars on a repair track, or the handling of locomotives at a congested engine terminal, excellent results are invariably accomplished.

The principal charts used in enginehouse operation are those showing forces and locomotive movements.

Fig. 1 shows locomotive movements at a medium size engine terminal despatching 15 locomotives in the 24-hour period. The time of arrival of the locomotive is shown by a cross and the time of departure is shown by a circle. The sum and location of the arrivals and departures, crosses and circles, determine the organization, the number of fire cleaners, hostlers, watchmen, inspectors and mechanics needed and also the time when the maximum number of locomotives arrive and depart. When there are isolated crosses, as will be noted in the chart at 12.40 p. m., it can be determined, if economical operation can be best obtained by delaying the fire-cleaning operation, either on the ash-pit track, if the house is filled with power, or moving the engine into the house immediately upon arrival and cleaning the fire on the outbound movement.

As each line represents a locomotive, the number for each hour can be seen and the number of watchmen can

* Abstract of a paper presented before the Central Railway Club of Buffalo at a meeting at the Hotel Statler, Buffalo, N. Y., October 13, 1932.

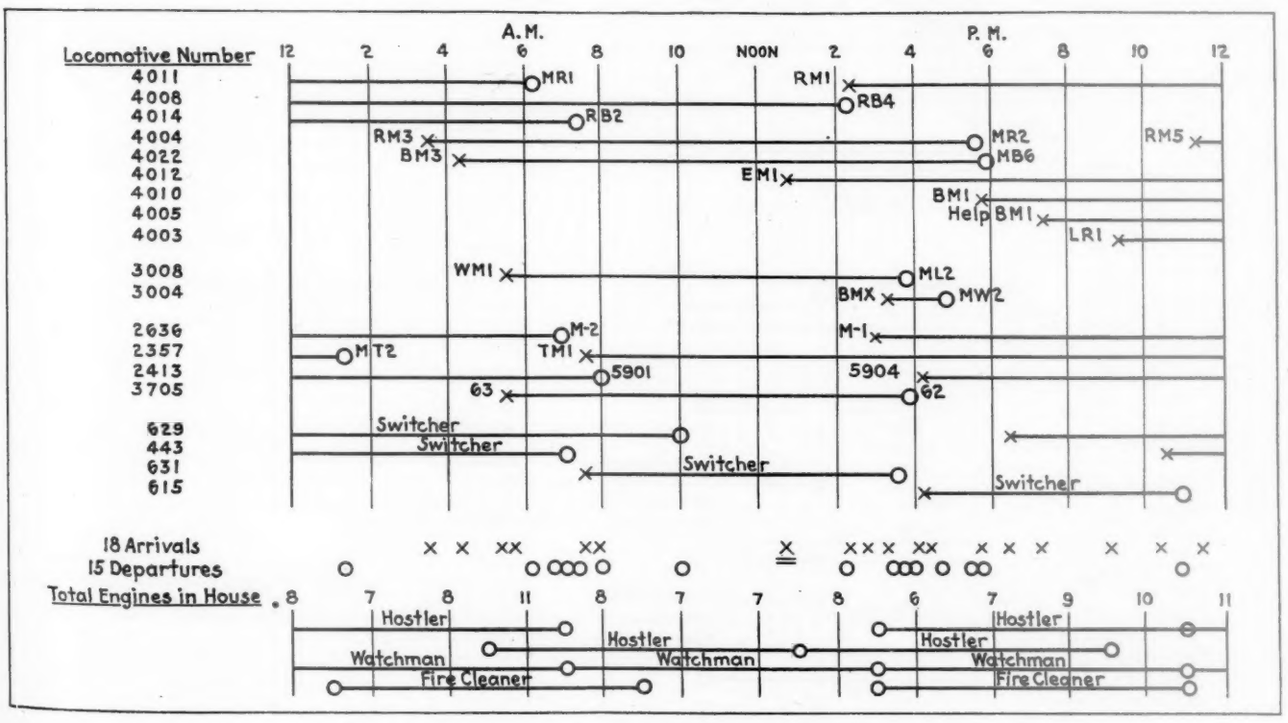


Fig. 1—Locomotive Movements at a Medium Size Engine Terminal

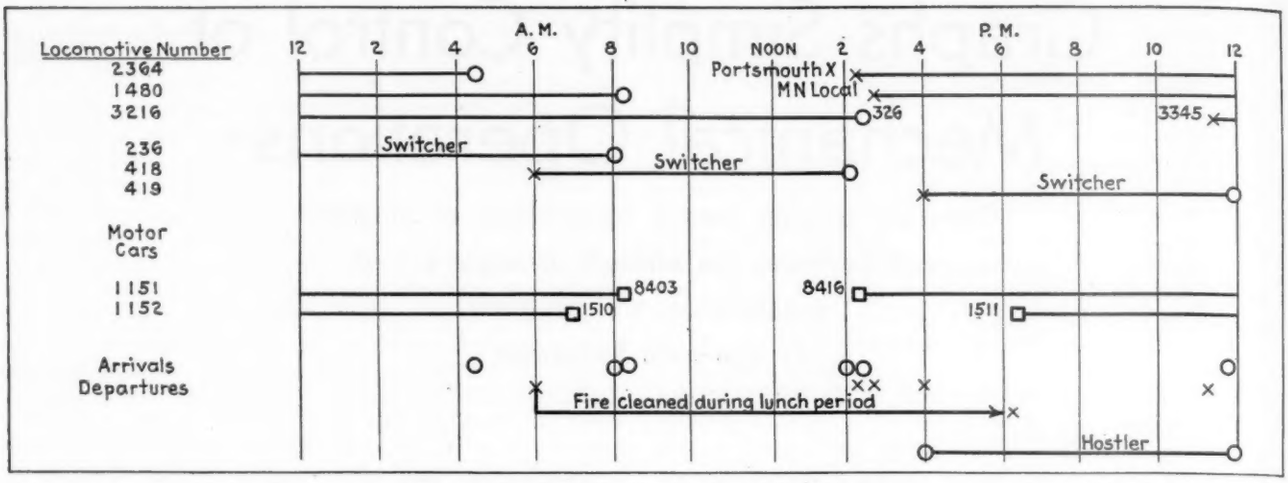


Fig. 2—Locomotive Movements at a Small Enginehouse

be definitely determined. For hostling, the crosses and circles determine the amount and the number. When there are several isolated circles, they can be handled by having the hostler set out the locomotive on the outgoing track ahead of time or by having the engine crew take the locomotive out of the house. A similar inbound operation is possible with scattered crosses.

In this particular operation it will be noted that there are two distinct groups of movements and neither covers a full eight hours. The foreman puzzled at length as to how to cover the situation with only one additional hostler. The graphical chart clearly showed the answer to be a lapping of tricks. This gained the advantage of a split trick in effect without actually establishing one. When it is possible to handle a terminal with only one or two engine-crew despatchers, the chart will show it and will determine the hours. When the number of mechanics is limited, particularly when there is only one of a class, such as an air-brake repairman, automatic-train-control man or electrician, the hours can readily be set. The chart is also helpful in determining the amount of supervision needed. This is especially so in the case of covering a house with two foremen without having to resort to the undesirable 12-hour trick.

Fig. 2 shows a small enginehouse operation. The interesting feature in this case was the matter of a shifter which would ordinarily have called for an extra hostler. A study of the chart showed that, except for the shifter, it was possible to concentrate all the work in one eight-hour period. The shifter was included in this shift by having it placed in the enginehouse during one of the lunch periods.

Fig. 3 shows the complete force and locomotive movements of a small engine terminal. Each man is represented by an individual line giving the hours on duty. The relation of the force to the operation will be readily seen.

In working out the consolidation of three enginehouses, after the building of the new terminal enginehouse at Boston, the use of various graphical charts was indispensable. This house is located three-quarters of a mile from North Station where 342 schedule trains arrive

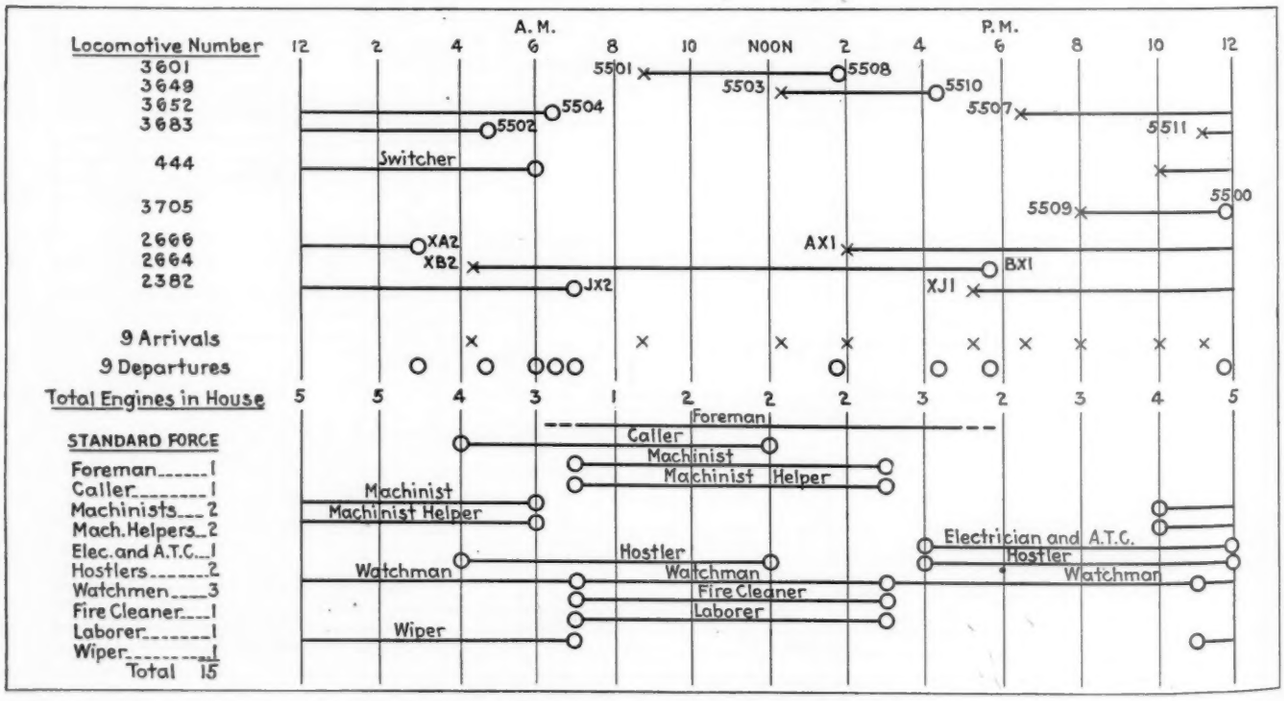


Fig. 3—Complete Force and Locomotives of a Small Enginehouse

and depart daily. On the north side of the engine terminal, less than a mile away, is located the hump and classification freight-car yards and on either side across the main-line tracks are the passenger-car yards. At an engine terminal of this size, unless the movements in and out are studied and plans developed to relieve the peak periods, congestion is bound to occur resulting in inefficient operation.

This is a 50-stall enginehouse, with a total of 12 incoming and despatching tracks with cinder pits, coaling and sanding facilities servicing six tracks. For the period 8 a. m. to 11 a. m. there are 44 locomotive arrivals, or 32 per cent of the total for the 24-hour period. From 2 p. m. to 5 p. m. there are 50 departures, or 37 per cent of those for the 24-hour period.

Prior to the introduction of a system in handling the peak periods, there were times when all incoming tracks were filled and locomotives were backed up past the inbound switch which is only 1,050 ft. from the turntable. In order to relieve the congestion it was necessary to decrease the number of locomotives handled over the ash pit during this peak period. A study of a chart showing the arrivals and departures during this period disclosed the fact that 20 local passenger locomotives could be segregated and switched onto designated tracks. This would relieve the congestion appreciably and allow preference to be given to the locomotives in through-run service. When the incoming tracks were cleared sufficiently, the schedule of the others was started.

Fig. 4 shows the 20 selected locomotives arranged in groups: *A* with eight locomotives, *B* with eight locomotives, and *C* with four locomotives. Each locomotive is designated by a symbol number A-1 to A-8, B-1 to B-8 and C-1 to C-4. Group *A* is composed of locomotives, first arrival and first departure, and they are set on an incoming track in the order shown and turned and set out for despatchment on a selected track in the same order as they arrive at the turntable. Group *B* is made up of locomotives, first arrival and last departure, so it is necessary to make a second turntable movement by taking locomotives off the rear end of the line-up and despatch in time order. Group *C* engines are reversed in order at the turntable.

An *A-B-C* locomotive schedule is made out daily by the chief engine despatcher for the general foreman, switchman and turntable operator showing locomotive numbers, trains arriving and departing and assigned tracks for incoming and outgoing locomotives. Locomotives in this selected group reach the enginehouse only once every week to receive extensive or necessary repairs. Four locomotives are sent in the house every week day except Saturday. During the remaining days of the week the inspecting and repairing is done when the locomotives are set on the outgoing tracks.

Fig. 5 shows the arrival and length of time locomotives are on incoming tracks before and after using the *A-B-C* method. This system not only decreased the average time on the incoming track from more than two hours to less than one hour, but also greatly benefited the enginehouse organization by assisting in planning for the locomotives usually requiring more attention and repairs. In actual practice this method of operation entirely eliminated all congestion.

Furthermore, during the rush or peak load the track capacity has been increased at least 70 per cent, which permits even a greater number of despatchments when occasion arises. With the present ease of the scheduled operations, the ultimate capacity of the enginehouse no doubt can be increased beyond original expectations.

The use of graphic charts was later extended to an analysis of car inspection, used to determine the

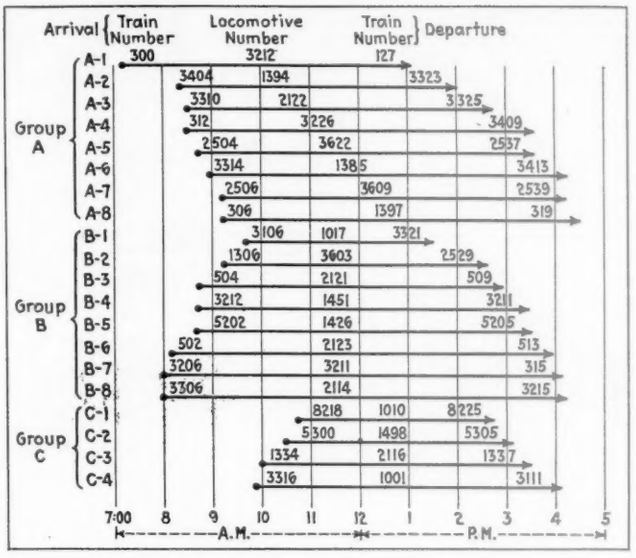


Fig. 4—A-B-C Groups—20 Selected Locomotives

number of inspectors necessary, as well as the working hours. While only one chart is shown (Fig. 6), a thorough study requires a chart for a full week in order to take care of the variations in arrivals and departures. Where they do not fluctuate to any extent, the hours can be definitely set. However, leeway should be provided by arranging for proper notification of the

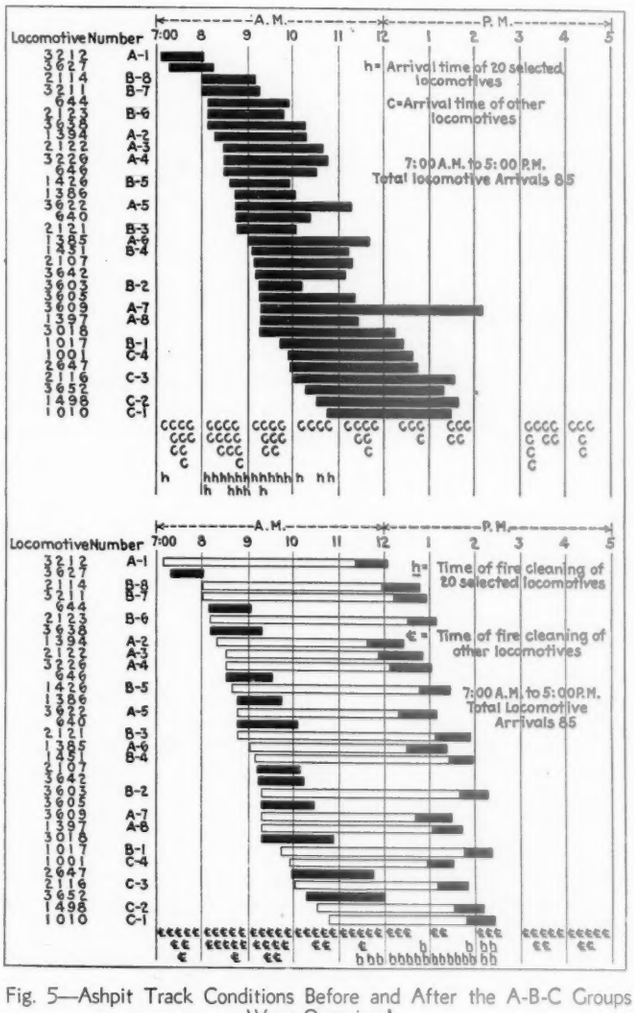

Locomotive Number
A.M.
P.M.
7:00 8 9 10 11 12 1 2 3 4 5
h= Arrival time of 20 selected locomotives
C=Arrival time of other locomotives
7:00 A.M. to 5:00 P.M.
Total locomotive Arrivals 85
h= Time of fire cleaning of 20 selected locomotives
¢ = Time of fire cleaning of other locomotives
7:00 A.M. to 5:00 P.M.
Total Locomotive Arrivals 85

Fig. 5—Ashpit Track Conditions Before and After the A-B-C Groups Were Organized

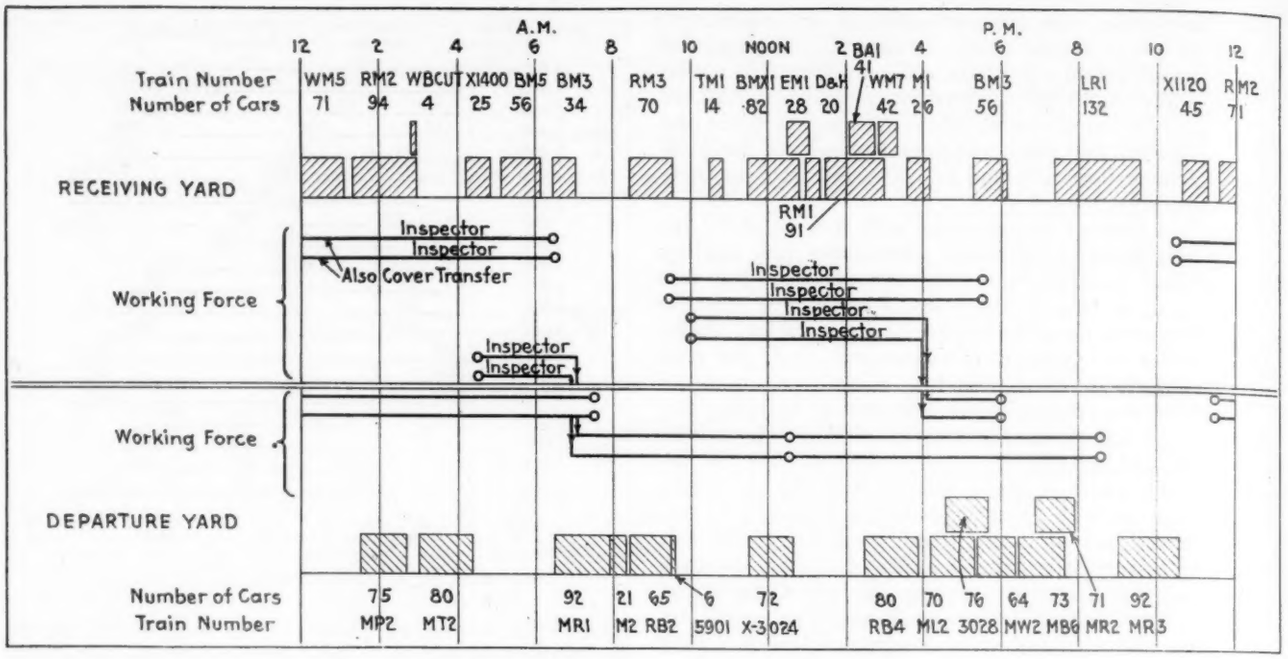

A.M.
P.M.
12 2 4 6 8 10 NOON 2 4 6 8 10 12
Train Number WM5 RM2 WBCUT X1400 BM5 BM3 RM3 TM1 BMX1 EM1 D&H 41 WM7 M1 BM3 LR1 X1120 RM2
Number of Cars 71 94 4 25 56 34 70 14 82 28 20 42 26 56 132 45 71
RECEIVING YARD
RM1 91
Working Force
Inspector
Inspector
Also Cover Transfer
Inspector
Inspector
Inspector
Inspector
Inspector
Inspector
Working Force
DEPARTURE YARD
Number of Cars 75 80 92 21 65 6 72 80 70 76 64 73 71 92
Train Number MP2 MT2 MR1 M2 RB2 5901 X-3024 RB4 ML2 3028 MW2 MB6 MR2 MR3

Fig. 6—An Analysis of a Car-Inspection Operation

foreman in case of unusual delays. The first move in making the chart is plotting the time of arrivals on one line and the time of departures on another line. Then lines or blocks are drawn equal in length to the train minutes required. This is the number of cars, times the man-minutes per car, divided by two. Where there is no overlapping, two men are sufficient. Where there is appreciable overlapping, four or more men are required. In many cases the heavy demand in the receiving yard precedes the heavy demand in the departure yard. The use of a chart will readily show if the temporary transferring of men will cover this requirement.

In shops the advantageous use of charts is principally confined to material and engine movements. The lining out on a scale plan of the shop of the movement of individual parts frequently discloses cross and reverse movements that can often be eliminated with resultant economy. In studying re-arrangement, the most advantageous moves can best be determined by these methods.

The use of graphical methods for individual locomotives, or groups, has been particularly helpful in establishing economical mileage between class repairs.

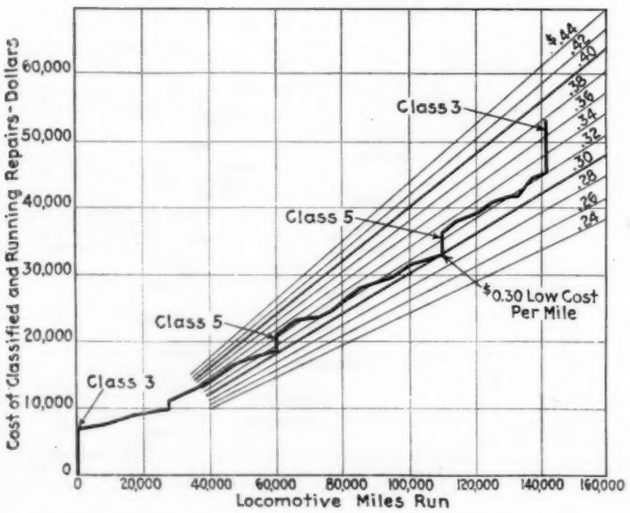


Fig. 7—Locomotive Mileage and Repair-Cost Chart

Charting Costs

Fig. 7 shows a locomotive mileage and cost record which it is possible to keep up to date with a surprisingly small amount of clerical work. Mileage is used as a base and dollars as ordinates. Radial lines are drawn for each repair cost per mile. There is a 26-cent line, a 28-cent line, a 30-cent line, and so on. The lines are readily drawn by the determination of a single point. With that and zero as the other point, a straight line is drawn. An average cost of 30 cents per mile at 50,000 miles would be $15,000. At 100,000 miles it would be $30,000. A check of each straight line will show the same relation to hold at any other point.

The cost record of an individual locomotive is shown on the chart. It starts with the cost of a class repair at zero mileage, running costs and mileage being added monthly. It is essentially a curve of total cost versus total mileage. It is continued until the next general shopping. The curve shown covers an actual case and shows the loss by running too great a mileage. There were two Class 5 repairs, one at 60,000 miles and the other at 110,000 miles. The cost at 60,000 miles was 31 cents per mile. The Class 5 repair at this point fully justified itself because the cost dropped to 30 cents at 110,000 miles. However, the Class 5 repair at this second point did not justify itself because the cost only dropped back to 32 cents, when it was necessary to shop for a Class 3 repair. The actual loss was two cents over the entire 142,000 miles, or $2,840.

With charts of each locomotive periodically checked, they are particularly useful in determining the economical mileage of each class as well as the proper shopping of each individual locomotive.

THE INTERSTATE COMMERCE COMMISSION on November 1 made public its report and order prescribing a revision on a mileage basis of rates on industrial sand and related commodities between points in Official territory in place of the present rates, which are found unreasonable after an extensive proceeding of investigation.

Electrical Section and A. R. E. E. Hold Joint Meeting

Reports for 1931 and 1932 are discussed in one-day session in Chicago

THE Electrical Section, Division IV, Engineering, American Railway Association, and the Association of Railway Electrical Engineers held concurrent meetings on Thursday, October 27, in the Congress Hotel, Chicago, Ill. The two associations met separately in the early part of the morning and the latter part of the morning was given over to a joint meeting in which all subjects pertaining to illumination, power generation, power supply, power plants and application of radio to railway trains were discussed. Two separate meetings were held in the afternoon. There were no exhibits by supply manufacturers.

At the conclusion of the meetings officers of the two associations were elected to serve during the ensuing year.

For the Electrical Section, J. H. Davis, Baltimore & Ohio, and R. G. Gage, Canadian National, were elected members of the committee of direction. The following were elected as members of the nominating committee: B. F. Bardo, New York, New Haven & Hartford; C. H. Griffith, Missouri-Kansas-Texas; J. S. Hagan, Central Railroad of New Jersey; J. E. Gardner, Chicago, Burlington & Quincy; S. D. Kutner, New York Central.

Officers elected by the A. R. E. E. are as follows: George W. Bebout, Chesapeake & Ohio, president; A. M. Frazee, Duluth, Missabe & Northern, first vice-president; P. J. Callahan, Boston & Maine, second vice-president; J. S. Hagan, Central Railroad of New Jersey, Member of the Executive Committee, Eastern Section; T. W. Wigton, Chicago, Burlington & Quincy, Member of the Executive Committee, Western Section.

The outgoing A. R. E. E. president, F. W. Reed, Northern Pacific, was presented with an emblem in expression of the Association's appreciation for his services during the past two years.

Electrical Section Reports

The more important features of the principal Electrical Section reports and the high spots of the discussions are summarized in the following:

The reports of committees on revision of manual and inductive co-ordination were received without discussion.

Electrolysis—Electrolysis resulting from leakage of current from catenary and third rail systems over supporting insulators is summarized in the report. Soot and moisture apparently are important factors. On the Baltimore & Ohio insulators coated with a deposit of rust were found to be responsible for much of the leakage. Cleaning of these insulators practically removed the trouble.

For the most part, leakage currents through the foundation of catenary structures were found to be very small and on the Illinois Central no indication of any damage to either foundation or guys has been detected. At the Cleveland Union Terminal it was found that the bonds connecting the catenary supporting structures to the track rail provided a path for current flow from the track rail over the bond to the structure and thence through the structure to the earth. To correct this, all bonds between the rail and catenary supports were disconnected and an aerial negative cable of suitable size was installed the entire length of the electrification. On the Lackawanna some leakage current was noted from practically all guy wires, and in several cases as high as three or four amperes per guy were measured when the rail, and therefore the guy, was approximately 20 volts positive with respect to the ground. Correction was effected by connecting the ground wires, which tie together all structures, to the rail through spark gaps, except at sub-stations.

The report was presented by S. D. Kutner, New York Central. The discussion developed a question as to what kind of spark gap to use between the rail return and supporting structures on electrified railroads. J. M. Trissal said that the Illinois Central uses two brass strips with two-inch contacts separated by five mils of mica, the assembly being placed in a sealed box.

Transmission Line and Catenary Construction—The work of the committee includes two sets of specifications for round and grooved trolley wire. One set deals with hard drawn copper wire and the other with bronze wire. The specifications are necessarily broad in scope and represent for the most part minimum requirements.

The report was presented by B. F. Bardo, New York, New Haven & Hartford. During the discussion a suggestion was made that the number of splices per mile of trolley wire should be specified, but this was disapproved on the ground that such specification might cause the manufacturer to use too great a part of each wire bar or billet and thereby lower the quality of part of the wire. The specifications contained in appendix A of the report were adopted and will be included in the Manual.

Economics of Railway Location—Much of the ground work on the subject of economics of railway location as affected by electric operation has been covered and it remains only for the committee to make a final report, assembling all the essential data and putting them in form for approval by the construction and maintenance section.

The report was presented by D. J. Brumley, Illinois Central. It states that "the introduction of the electric locomotives may affect the economics of railway location with respect to (a) the rolling grade, (b) total curvature, (c) length of tunnels, (d) location of repair, inspection and terminal facilities." H. F. Brown, New York, New Haven & Hartford, suggested that the development of locomotives also introduces the matter of fuel supply and this should be included among the list of items.

Standardization of Insulating Tapes—A revision of the specifications for friction tape was the feature of the report. This revision, designated as issue 3, was placed before the Section for approval to replace the

present specification for this tape now appearing in the Manual under the head of issue 2. The specification covers the details of manufacture, chemical properties, physical properties and tests, standard dimensions and variations, and inspection and rejection.

The report was presented by S. D. Kutner, New York Central. The discussion centered around the question of whether to adopt the more rigid Signal Section specifications for friction tape with attendant higher costs or to use different specifications for traction power requirements. In conclusion the report was accepted as information and referred back to the committee without including the specifications for friction tape in the Manual.

Standardization of Insulators—The committee submitted a number of items for discussion. Among the tests suggested were the so-called "thermal" tests, where alternate applications of heat and cold tend to develop to what extent, if any, a given design may be subject to a wedging action which might be detrimental in service.

The report was presented by K. H. Gordon, Pennsylvania. H. F. Brown, New York, New Haven & Hartford, suggested that the present specifications, which call for immersing the insulators alternately in ice water and boiling water, should be changed to more closely simulate the conditions undergone by insulators in service.

Protection of Oil Sidings—The rules drafted by the committee require the use of a metal lined filling hose having the lining in metallic contact with the nozzle and pump frame or truck tank as the case may be. The report also deals with bonding and insulated joints required for such protection.

The report was presented by L. C. Winship, Boston & Maine. There was a lengthy discussion which centered about the question of whether separate specifications should be provided for loading or unloading of flammable liquids for locations in which the danger is due entirely to static electricity from those in which there may be stray ground currents due to traction power or other reasons. Further work of the committee will be required to clear up this point.

Design of Indoor and Outdoor Substations—This report was the longest one presented before the Section. It is divided into three main sections as follows: A. C. protection for substations; outdoor frequency changer sets, and mercury-arc rectifiers for railroad substations.

The report was presented by J. S. Hagan, Central Railroad of New Jersey. W. M. Vandersluis, Illinois Central, chairman of the Electrical Section, stated that it is a most thorough analysis of the entire substation situation. The report constitutes a text book on the design of substations and includes practically all types of relay operation which a railroad electrification may require. H. F. Brown, New York, New Haven & Hartford, stated that the railroads will probably find greatly increased use of electronic tubes which are now being developed and suggested that a committee should be appointed to study developments and applications.

Corrosion Resisting Material—The work on corrosion resisting material was continued in the study of the samples which were installed in a smoke jack at Cedar Hill enginehouse at New Haven in June, 1930. The samples were again removed and observations tabulated. The ferrous materials show considerable corrosion, whereas some of the non-ferrous samples are still in good condition.

Other samples were located in Hemphill tunnel and also at Lambert's Point, both on the Norfolk & Western. The samples in the tunnel showed similar corrosion effects to those found in the samples at Cedar Hill, but to a lesser degree. The third group at Lambert's Point were only placed there on January 21, 1932, and hence have not had sufficient exposure to warrant drawing conclusions. It is expected to obtain from this latter set of samples the corrosive effects resulting from salt fog, combined with locomotive smoke and coal dust incident to this location.

The report was presented by H. F. Brown, New York, New Haven & Hartford. It has been suggested by some of the manufacturers of materials under test that the method of testing in a roundhouse jack was unnecessarily severe and did not duplicate conditions in actual service. Mr. Brown responded by stating that the corrosion of some of the samples placed in a tunnel was actually greater than those in the roundhouse jack.

Bonding—The committee does not feel that the time is right for the preparation of specifications of bonds because of the changes which are being brought about in the design of welded bonds. One of the most important recent developments is the bond with solid steel terminals flash butt-welded to the conductor at the factory. A summary of present-day practice regarding track rail bonding has been compiled in tabular form and is offered as a part of the report.

The report was presented by H. F. Brown, New York, New Haven & Hartford. The discussion was limited to the consideration of the magnitude of rail return currents.

Miscellaneous Regulations—The report on cooperation in miscellaneous regulations was presented by B. F. Bardo, and the recommendations of the committee were approved by the association. K. H. Gordon called attention to the question of marking obstructions to aerial navigation and suggested that proposed legislation should be carefully observed by railroads as it might become burdensome.

High Tension Cables—The report on high tension cables was presented by H. F. Brown, New York, New Haven & Hartford. The recommendations included were adopted and the report accepted.

A. R. E. E. Reports

Features of the principle reports presented before the Association of Railway Electrical Engineers are summarized in the following:

Electric Welding Equipment—The committee assigned to electric welding recognizes a field of usefulness for both the individual and the multiple welding machine but feels that the former has the greater flexibility. The automatic electric welder, it is believed, could be used to advantage in building up wheel centers, car axle collars, etc., and costs of this operation for wheels of varying sizes is given in tabular form.

Automotive Equipment—The report on railway automotive equipment was confined largely to a discussion of maintenance methods in the handling of general and running repairs. Tool lists are given for maintenance points where only light repairs are made and for points where general repairs are made.

The report was presented by E. F. Weber, Chicago, Burlington & Quincy. E. Wanamaker, Chicago, Rock Island & Pacific, stated that the information contained in the report can, in his opinion, be instrumental in reducing the cost of maintaining rail motor car equipment on many roads by as much as 25 per cent. Mr. Wanamaker mentioned certain experiences showing that there had been instances where electricians assigned to the maintenance of the electrical portions of rail motor car equipment, had not functioned as well as had machinist maintainers who maintain the electrical equipment at outlying points where no electricians were available. He

attributed this condition to the fact that the machinists followed more closely and carefully than the electricians the detail maintenance instructions for traction motors and their control system.

Mr. Wanamaker, recommended that motor car maintainers be qualified and certified by due and suitable examinations, after which they be given point, division and system seniority, as such in the order named, at the same time retaining their craft seniority in accordance with their craft seniority agreements. Such an arrangement, he contends, protects the motor car maintainers in every way, and at the same time the companies will not be penalized by having continually to break in and use green maintainers. He claimed that practically all undue and excessive maintenance costs and unsatisfactory performance of rail motor cars can be traced to green, unskilled or inefficient maintainers.

Train Lighting—The report of the train lighting committee is largely influenced by factors other than lighting; two of the most important of these factors are refrigeration and air conditioning. The service records of a number of positive axle drives are included in the report. The standard battery box is recommended for automotive car lighting. For battery charging on the heavier equipment of this class an independent gas engine driven unit is recommended.

P. J. Callahan, Boston & Maine, presented the report. That part dealing with electric power supply for air-conditioning equipment was the subject of a lively discussion which dealt with the relative merits of the various air-conditioning systems themselves. J. E. Gardner, Chicago, Burlington & Quincy, and J. C. McElree, Missouri Pacific, commented on the desirability of standardizing on specific items of equipment involved where cars are interchanged with other roads on which different air-conditioning systems are in use.

Gear-type drives were compared with belt drives. G. W. Bebout, electrical engineer, Chesapeake & Ohio, described certain experiences with both types. The Pullman gear-type drive, he said, has been known to admit dirt into the gear box and consequently to become noisy at high speeds, whereas the belt drive is more satisfactory.

Concerning the use of the steam-vacuum system, A. E. Voigt, Atchison, Topeka & Santa Fe, stated that present indications point to the future widespread use of a 30-lb. nozzle in such systems, and expressed his opinion that this will solve the problem of applying this system to extremely long trains. Mr. Voigt also compared the duct and ductless systems on the basis of temperatures encountered. He drew attention to the fact that if comparatively low temperatures are prevalent, the ductless system may prove to be entirely satisfactory, but that, if extremely high temperatures prevail, the duct system must be used if objectionable drafts are to be avoided.

Frank Zimkowski, New York, New Haven & Hartford, stated that their ductless system is efficient and inexpensive.

Locomotive Electrical Equipment—On the subject of cab illumination, the committee has carried out a number of experiments with the view of utilizing one central cab lighting fixture to replace numerous individual fixtures at the various gages. Fusing of locomotive circuits is a matter which the committee feels should be made optional.

C. W. Nelson, Chesapeake & Ohio, outlined the work of the committee, as well as that of its four sub-committees. The discussion disclosed differences of opinion concerning specifications for headlight wire and the practice of fusing locomotive circuits. The sub-committee is of the opinion that inasmuch as there is a wide variance of opinion regarding the necessity of fuses in locomotive circuits, the entire matter be made optional. The report was turned over to the executive committee for further handling.

Motors and Control—The report on motors and control outlines the requirements for automatic pumping stations and presents curves showing the comparison of prices of high power factor motors with other types. Information is given concerning the application of grease to ball and roller bearings. For use in connection with Duco spray painting the committee recommends only a low temperature, entirely enclosed fan-cooled motor with both air supply and discharge connected by pipe to the outside of the enclosure.

Comparatively little discussion followed the presentation of the report by C. G. Winslow, Michigan Central. Geo. W. Johnson, New York, New Haven & Hartford, stated that in place of the fused safety switch recommended for pump motors, he favors a device that will trip out two or three times before permanently opening the circuit, contending that such a device will aid materially in reducing maintenance work.

Electrical Section and A. R. E. E. Joint Meeting

Illumination—The reports on illumination for both associations were presented in joint session. The A. R. E. E. report was presented by George T. Johnson, New York, New Haven & Hartford, and the Electrical Section report by George W. Bebout, Cheapeake & Ohio. The two reports are essentially the same.

The report embraces a continued study of the schedule of incandescent lamps and specifications for large tungsten filament incandescent lamps. The study of the floodlighting of yards has also been continued with a view of making available the latest standards and information as developed, collaborating with the committee on yards and terminals, of the construction and maintenance section.

The trend has been to greater foot-candle intensities for all classes of illumination other than decorative lighting. Improvements have greatly reduced glare and higher lighting intensities are available with better uniform distribution.

A new line of cheap lamps has been introduced to the market in competition with foreign lamps. The new lamps are designed for 500-hour burning instead of the 1000-hour service of the standard lamps. Inside frosted lamps are now being made in larger sizes than formerly. The report includes a number of tables giving the lamp demand for train and locomotive lighting as well as incandescent lamp standards for a wide range of applications.

The questions dealt with in the discussion of the report were the maximum intensities which are economically justifiable, the relative advantage of the G-40 and PS-42 floodlight lamps, cab lamps, prefocused headlight lamps, and the question of stocking lamps of only one voltage for the 110-120 volt range. Intensities of illumination up to 50 foot-candles are recommended by manufacturers but the railroads seem to think this is unnecessarily high. The manufacturers' representatives pointed out that in some cases intensities much higher than 50 are economically justifiable. Railroads are divided concerning the two types of cab lamps and experience indicates that either types of lamp may outlast the other, depending upon the type of vibration to which it is subjected; whether it be shock or high frequency vibration. Questions concerning the use of prefocused headlight lamps which permit smaller headlight cases are to be answered by correspondence. It was suggested in the future that each association should handle a part of the subject so that there will be no duplication of effort and the report will be a joint work.

Purchase of Electrical Energy—The Electrical Section committee report on form of power contract for large blocks of power was accepted without discussion.

The A. R. E. E. report on purchase of electrical energy was presented by George T. Johnson, New York, New Haven & Hartford. Mr. Johnson explained that the A. R. E. E. committee is not a contract committee but works to obtain the best operating schedules and saving of power. He stated that the railroads must accept the utility companies contracts in the case of purchasing small amounts of power, but that they can do much by obtaining better schedules.

E. Wanamaker, Chicago, Rock Island & Pacific, stated that they had reduced power costs by $40,000 in the past year by changing the manner of purchasing power. He also stated that the power companies have been entirely friendly in the rearrangement of such contracts. L. C. Winship, Boston & Maine, stated that investigation of schedules shows a multitude of variations and that the change of connected load and the manner in which that load is connected, has resulted in savings and simplification. Mr. Bebout stated that demand charges carry over for too long a period and that in some cases power companies have acceded to a change in the demand clause. He further stated that where this is not possible the power can often be purchased from one source and distributed to various applications. One such change showed more than a 50 per cent saving in the investment for additional distribution facilities required. H. F. Brown, New York, New Haven & Hartford, said that power companies are willing to consider the railroads diversity of demand and consolidation of services. He said that usually a satisfactory compromise is possible.

Power Supply—The Electrical Section report on power supply states that new steam plants show a tendency towards larger units and higher speeds with higher steam pressures. In the hydro field, low head, unusually large diameter generators were placed in service both in this country and in Canada. A 14,000 hp. and a few 11,000 hp. Diesel units were installed in power plants.

The report was presented by H. F. Brown, New York, New Haven & Hartford, who stated that it was an information report and that no action was necessary.

Power Plants—The A. R. E. E. report on power plants covers an analysis of lignite obtained from various states and that the calorific values of different kinds of dry woods is included in tabular form. Power plant adjuncts, such as condensers, spray ponds and cooling towers are discussed at length. General descriptions of both two- and four-cycle Diesel engines are included and the advantages and efficiencies of each of the several types are pointed out.

The report was presented by W. A. Lanahan, Memphis Union Station Company. It was accepted without discussion and the committee continued.

Radio—The A. R. E. E. report on application of radio to railway service was confined to the installation of receiving equipment for entertainment and was presented by George W. Bebout, Chesapeake & Ohio; the Electrical Section report on radio antenna on cars in electrified territory was presented by K. H. Gordon, Pennsylvania.

F. O. Nelson, Chesapeake & Ohio, showed how the use of remote control obviated the necessity of constant operation of the motor generator set and effected a desirable power saving. Mr. Bebout recommended that one consolidated report be made by two associations. The problem of consolidation of these radio committees was referred to the executive committees of the two associations.

Frisco in Receivership

THE St. Louis-San Francisco after five months of strenuous efforts to avoid the necessity of a receivership, finally succumbed on November 1, when it consented to receivership action brought by the Hobbs Western Company, to which the railroad owed a $17,000 bill for supplies. J. M. Kurn, president of the Frisco, was appointed receiver by Federal Judge C. B. Faris at St. Louis. The petition alleged that the road had neither money nor ability to borrow funds necessary to meet requirements maturing in the immediate future and that the road was being threatened with suits by creditors. The Frisco admitted all allegations and joined in the request that a receiver be named.

Immediately following the appointment of a receiver, the directors of the Frisco, at a meeting in New York, declared operative the plan for readjustment of the railway's capital structure, which was expected to pull the Frisco through. This action by the directors was taken in spite of reports that only about 65 per cent of the bondholders have accepted the plan. In connection with this action, Edward N. Brown, chairman of the board, issued the following statement: "Consent by the Frisco to appointment of a receiver for its property is not in any sense an abandonment of the readjustment plan. On the contrary, assents to the plan thus far received have been sufficient to make the readjustment managers confident that the plan can be carried out through receivership proceedings, even if there is not sufficient unanimity of action on the part of the bondholders to permit its being carried out as a wholly voluntary plan without sale in receivership. Accordingly the readjustment managers have declared the plan operative. The company and the readjustment managers have repeatedly stated that no substantial minority would be permitted to profit by sacrifices made by the assenting majority. It is still hoped that this end can be attained by voluntary action, without the delay and expense involved in the foreclosure of the company's three mortgages or sale in receivership proceedings, and that the receivership can speedily be terminated. However, if this proves impossible, the receivership affords the means of carrying out the readjustment so as to make it binding upon all security holders, whether or not they assent to the plan, and affords the property the protection of the court while the steps necessary to carry out the plan are being taken."

The Readjustment Plan

The plan for readjustment of the Frisco capital structure was devised last summer, when such action was called for by the Interstate Commerce Commission before the latter would approve a loan to the Frisco by the Reconstruction Finance Corporation. This loan, which was approved by the Commission on June 30, was for $3,390,000 to pay interest due on prior lien bonds of 1950, and to pay taxes, and avoided receivership at that time.

The plan provided for immediate reduction in the annual rate of interest on bank loans from six to three per cent, and for indefinite deferment of the bulk of the remainder of the fixed interest charges accruing during the next five to ten years. It also contemplated a reduction of the funded debt and an increase in uncapitalized assets when earnings of the company permitted. It also provided for the creation of a new mortgage to secure an issue of $25,000,000 of bonds, junior only to the underlying mortgages of constituent companies. This plan

(*Continued on page 653*)

Railroad Rates, Bargain or Burden?

Freight transportation which a week's wages will buy in America, as compared with other countries

By H. W. Faus
Engineer of Tests, New York Central Lines

MOST readers of the *Railway Age* are aware of the fact that American railroads (including the privately owned railroads in Canada) furnish cheaper freight transportation than any others in the world. Probably few, even of those especially well informed, however, know the wide margin by which this is true.

Much of the lack of information on this subject, particularly during recent years, is probably due to the radical fluctuations in relative money values and rates of exchange that occurred during and since the World War. Such attempts as have been made to compare railway transportation costs in this and other countries have been so intricately involved with rates of exchange or relative prices of labor and commodities that the average person is left in doubt even if he is able to follow the demonstration. Indeed, in so far as relative prices of commodities are concerned, one can "prove" almost anything by carefully selecting the particular commodities used as a basis for the comparison.

Entirely regardless of rates of exchange or the relative prices of flour, pig iron or cotton, there is only one question that interests the average inhabitant of any country, in so far as the cost of transportation is concerned, and that is, *How much can I buy with my average daily, weekly or monthly wage?*

The exact earnings of the average person have never been ascertained, even in this country; but the earnings of the average railway employee are definitely known. These are assumed to be typical and fairly representative of the wage standard in each of the countries considered.

Based upon the latest official figures available, most of which are government reports assembled by the Bureau of Railway News and Statistics, the average ton-miles of freight transportation that can be purchased with an average week's wages of one employee are shown graphically in Chart 1 for 26 different countries.

It will be noted that on the railroads of the United States, one week's wages will purchase 3088 and in Canada (excluding government railroads) 2879 ton-miles of freight transportation, as compared with only 1195 ton-miles in Sweden which ranks next in cheapness of transportation for the year 1930. The average for all countries outside of the United States and Canada is less than 650 ton-miles. The only important country missing from the list is France, for which no complete official figures later than 1922 are available. Based upon 1922 ton-mile revenues and wages, France, with 603 ton-miles for one week's wages, would rank just above Great Britain. It may be added that no country—important or unimportant—for which official railway statistics are available has been omitted from the list.

Upon a strictly comparable basis, therefore, railway freight charges elsewhere throughout the world are, on the average, more than 4½ times as high as they are on the privately owned and operated railroads in America. Advocates of government ownership may take what comfort they can from the fact that more than 75 per cent of the mileage represented by the figures for countries outside of the United States and Canada is state owned. Furthermore, many of the state railways, notwithstanding their relatively high rates, do not pay their way and must be supported by the tax payers. Railways in this country receive no subsidies from the tax payers but on the contrary contributed in 1930 more than $356,000,000, or nearly 7 per cent of their gross revenue, to the support of local, state and national governments.

The fairness of the above basis of comparison of transportation costs can be questioned only upon the theory that railway wage standards are not fairly representative of average wage standards in the various countries considered. This may be true, but in order to reach a conclusion less favorable to American railroads from the standpoint of comparative freight rates it would be necessary to assume that American railway wage rates are more than four times as high as the average wage rates in this country, or that foreign railway wage rates are less than one-fourth as high as the average wage rates in those countries. It will hardly be contended that either of these things is true, but even so, this would not explain how American railways were able to pay such

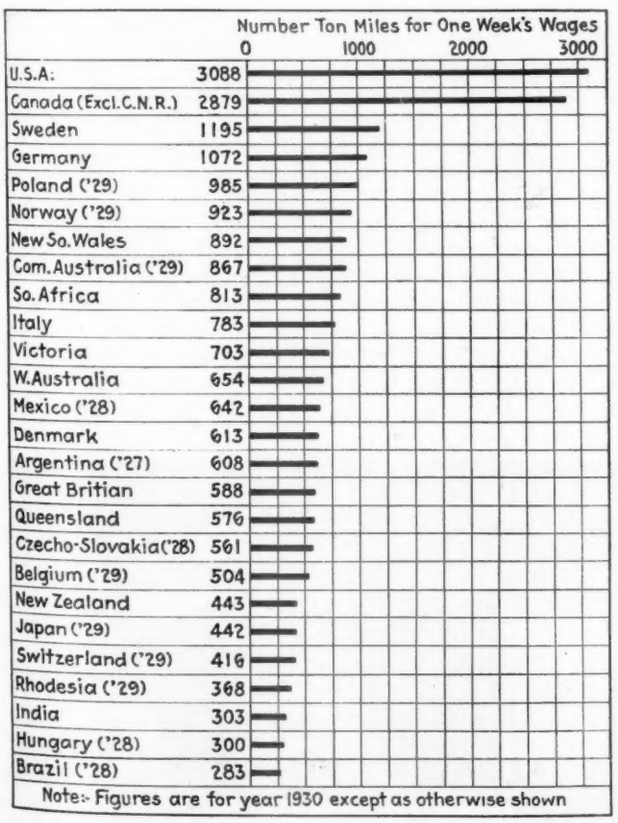


Chart 1—Average Number of Ton-Miles of Freight Transportation That an Average Week's Wages Will Buy

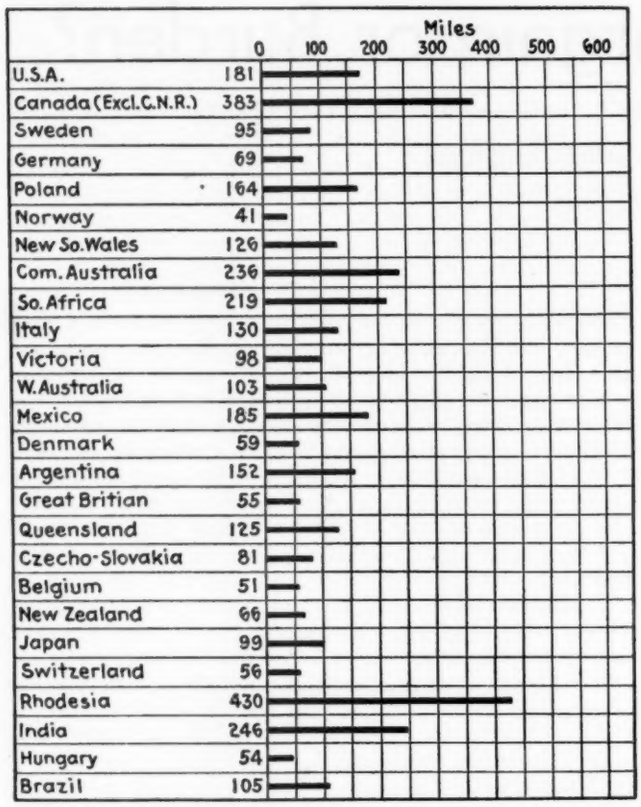


Chart 2—Average Length of Freight Haul

disproportionately high wages without charging proportionately high rates.

The difficulty just mentioned may be more fully appreciated when it is pointed out that, expressed in a different way, Chart 1 shows how many ton-miles of freight must be hauled by the railroads of each country to pay one week's wages of the average employee. These are simple facts, subject to no qualification or exception.

One of the most interesting things discovered when railway transportation costs are shown on this strictly comparable basis is the relative uniformity of these costs throughout the world—always excepting America. For example, taking the figure of 720 ton-miles for one week's wages as an approximate mean, it will be noted that the rates of all but four of the foreign countries fall within fifty per cent of this figure. This is even more remarkable in view of the fact that the average freight rates (revenues per ton-mile) and average wages, when converted into equivalent dollars and cents, vary by several hundred per cent. To be exact, the average revenues per ton-mile in these foreign countries vary from 0.82c to 11.39c, while the average weekly wages vary from $3.40 to $32.25.

Chart 2 is presented for the benefit of those who may have the mistaken notion that the exceptionally low freight rates in America are due to the "long haul" in this country. In this chart the same list of countries is shown in the same order as in Chart 1, with the average length of haul for each. Comparing Charts 1 and 2, it will be seen at a glance that length of haul is a much less important factor in cost of transportation than is generally supposed. Of course, it cannot be denied that, other things being equal, freight transportation costs per ton-mile decreases as average length of haul increases. It is obvious, however, that cheap freight transportation costs in the United States cannot be credited to length of haul.

Perhaps it will be thought that what the American public saves in freight charges is offset by comparatively high charges for passenger service. This is not so. It is not possible to make the same clear-cut comparison of passenger rates that is shown above for freight rates, for the reason that a large proportion of passengers on many foreign railways travel third or fourth class, putting up with a kind of service that would not be tolerated by the American passenger. The cost of transportation in an average American day coach cannot be compared with transportation in 4-wheel wooden box cars fitted with wooden benches. Rather than leave any doubt on this point, however, let us suppose that all railroads in the United States, including the Pullman Company, had carried all passengers free in 1930 and that the total sum that was actually received from railroad and Pullman fares, $894,367,000. had been added to freight charges. This increase in freight rates would have reduced the number of ton-miles of freight that an average week's wages would buy from 3088 to 2583. On this basis freight transportation in the United States would still cost only one-fourth as much as the average for the foreign countries shown in Chart 1.

It is interesting also to note how freight charges in the United States and in other countries would have compared had our railroads in 1930 had the benefit of the 15 per cent increase in freight rates refused by the Interstate Commerce Commission, and also the 10 per cent decrease in wage rates now in effect. The net result would have been to decrease the amount of freight transportation that one average weekly wage would buy from 3088 ton-miles to 2417 ton-miles. It was the opinion of the Interstate-Commerce Commission that the industries of the United States could not stand, or at least that they should not be burdened with, an increase of 15 per cent in freight rates. And yet the industries of countries outside of America, on the average, pay freight rates that are relatively 3.7 times as high as any schedule of rates so far proposed by American railroads.

No argument is needed to convince any reasonably well-informed citizen as to the importance of this cheap transportation to the nation. And yet the public in general, during times of prosperity as well as depression, is quite complacently witnessing the slow but sure starvation of the industry that supplies this transportation. For an industry to suffer starvation because it has outlived its economic usefulness is one thing, but to be deliberately starved by subsidized competition and governmental decree is quite another. Esau, who sold his birthright for a mess of pottage, was a shrewd business man compared with the American who consents to the sacrifice of his railroads in exchange for an increase in taxes.

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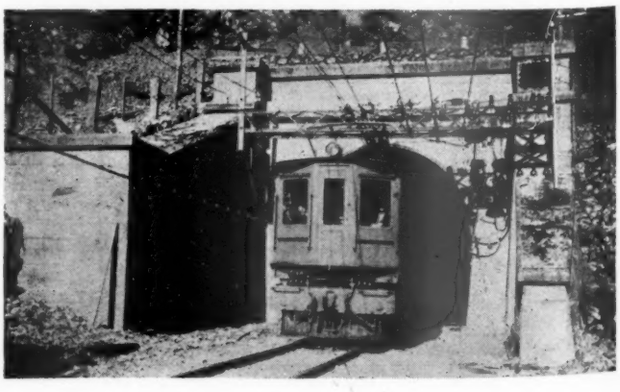

A Train Emerging from the Five-Mile-Long Otira Tunnel of the New Zealand Railways

Frisco in Receivership

(*Continued from page 650*)

was agreed to by the stockholders at a meeting in St. Louis on October 11, and as indicated, has been accepted by some 65 per cent of the bondholders.

The latest receivership action is the seventh taken to court during the last two months. The other six have been strenuously opposed by the Frisco and in only one, upon which decision had been handed down by the court, the railway had won its point. In that case, brought by holders of $3,500 of Frisco bonds, Federal Judge Faris said he believed the road should have another chance, and he was not deciding the question of dismissal on legal grounds, but on the broader question of whether receivers ought to be appointed for the road under the conditions of situations existing. The court held that the necessity of appointing a receiver at that time was based only on the presumption that business conditions would continue at low ebb and that likelihood of improvement in the business situation justified giving the railway a further chance to work its way out of its difficulties without receivership. In common with other railways, the Frisco has suffered a drastic decline in its revenues since 1929.

Last year the operating revenues on the railway were $57,112,998, a decline of 35 per cent from operating revenues of 1929, which were $89,109,286. From a balance of $10,192,073, after interest charges in 1929, net earnings of the company so declined that there was a deficit after interest charges in 1931 of $3,255,762. In the first eight months of this year net railway operating income was $2,228,986, as compared to net railway operating income for the first eight months of 1931 amounting to $7,446,372. In spite of the heavy burden of its long term debt, amounting to $293,760,766, and requiring annual payment of interest charges which amounted to $12,841,747, the Frisco as late as 1930 and 1931 paid substantial dividends on its $114,701,526 of issued preferred and common stock. Although no dividends have been paid this year, six per cent was paid on its preferred in 1931 and in previous years, while eight per cent was paid on its common stock in 1930, and an additional two per cent, declared late in that year, was paid to common stockholders on January 2, last year. Inability to stem the tide of declining business, however, finally made the Frisco's burden of fixed charges unbearable.

Causes of Receivership

The fact that the Frisco has been thrown into receivership is the result primarily of the capital structure of the railway, which completion of the readjustment plan would greatly improve, and also of the long-continued business depression. In several of the receivership actions charges were made that the company had been "bled white" and had been divested of working capital through the unjustified payment of dividends. These charges have been denounced by officers of the Frisco as wholly without foundation.

Adversely affecting the earnings of the Frisco has been the aggressive character of the competition which it has faced in its territory. In common with other railways in its territory, the Frisco has suffered severely from highway competition. Another factor which has hurt the Frisco has been the cessation of dividends on the Rock Island. Since 1926 the Frisco has owned common stock in the Rock Island to the amount of $18,333,300 upon which no dividends have been paid since the middle of last year.

Odds and Ends . . .

Road of Westinghouse Fame to Quit

According to newspaper reports from Troy, N. Y., the Troy-Schenectady Railroad, on which George Westinghouse experimented with his air brake, has been granted permission to abandon its line because of lack of patronage. The Troy-Schenectady, which is 90 years old, is now a branch of the New York Central.

This Week's Lackawanna Veteran Story

The publicity department of the Delaware, Lackawanna & Western, which would keep this page filled with stories about the retiring veterans of that road, if we would let them, has come through this week with a yarn about George C. Schomp, the veteran engineer of the ferry-boat "Binghamton," operating between Barclay street, New York, and the Lackawanna Terminal in Hoboken, N. J., who retired on October 22 with a record of 51 years and 11 months of continuous service behind him. It is estimated that Mr. Schomp crossed the Hudson approximately 477,249 times during his ferry-boat service, covering some 797,000 miles, which is equal to 260 trans-Atlantic crossings or 32 trips around the world.

To us, the most interesting—and the amusing—part of this story comes at the very end of the news item issued by the publicity department. Here, in the familiar handwriting of a Lackawanna executive, and immediately following the publicity department's statement that Mr. Schomp proposes "to enjoy the peace and quiet of the country," is this comment: "for about one month, and then hang around ferry terminals six days a week."

The Story of Standard Time

Next year will be celebrated the golden anniversary of Standard Time, which first became effective on November 18, 1883. The history of this now common-place feature of our lives is told by one of our readers as follows:

"The earth revolves toward the sun at approximately 13 miles per minute, so that when it is daylight at the Atlantic coast, for instance, it is dark in the West—all of which is elementary. As our country developed, communities found it difficult to carry on their affairs with other communities in using sun time, and gradually, therefore, there grew up a practice of small communities adopting the time used by neighboring larger communities. With the development of steam railroads, it was found necessary, in the interest of safety and convenience, to operate trains upon the time used by some large city. Prior to the adoption of Standard Time, the Pennsylvania operated its trains between Jersey City and Pittsburgh on Philadelphia time; Philadelphia time was 4 min. slower than New York time, and Pittsburgh was 20 min. slower than Philadelphia. It was estimated that in 1880 there were some 80 different standards of time used by railroads, and I recall the considerable checking up I had to do with railroad time as against local time in various cities, when I made a vacation trip in August, 1880, going from New York over the Pennsylvania to Chicago, 54 min. slower than New York on sun time, and thence to Winnipeg.

"Our Navy Department, for safety in navigation and other reasons, as well as the railroads, desired a time zoning system. The railroads organized under a name which I believe was the General Time Convention (forerunner, I believe, of the present American Railway Association) and the joint efforts of the Navy Department and the railroads resulted in Congress adopting the present system of Standard Time, which went into effect on Sunday, November 18, 1883. Greenwich determines the initial zone, the earth being divided into 24 zones, each approximately 15 deg. of longitude in width. Divisions are frequently fixed to meet local conditions.

"We frequently hear people ridiculing Daylight Saving Time, and some go so far as to refer to Standard Time as God's time, not realizing that God's time is sun time and Standard Time is man-made."

NEWS

Railway Age Editors Win A. B. P. Award

Class III prize goes to authors of 1931 "Planning for Railway Economy" series

Nine members of the *Railway Age* editorial staff, authors of the "Planning for Railway Economy" series of 25 articles which were published in the latter half of last year, have been awarded first prize for Class III in the 1931 awards of the Associated Business Papers, Inc. These annual A. B. P. awards are made for three classes of editorial work as follows:

Class I—Most Outstanding Editorial Service to Industry;

Class II—Best Single Editorial;

Class III—Best Article or Series.

The *Railway Age* winners of the Class III award are: C. B. Peck, W. S. Lacher, Alfred G. Oehler, James G. Lyne, John H. Dunn, D. A. Steel, John C. Emery, Marion B. Richardson and H. C. Wilcox. Mr. Steel, in addition, received honorable mention, also in connection with the Class III awards, for his article entitled "Railway Purchases and Inventories Lower in 1930" which appeared in the *Railway Age* of May 16, 1931, page 975; and Bernard L. Johnson, editor of the American Builder and Building Age, another Simmons-Boardman publication, has been awarded first prize in Class II. Mr. Steel won second prize in the 1930 Class III awards and Mr. Johnson received honorable mention in the Class II competition; in the 1929 awards Samuel O. Dunn, editor of the *Railway Age* and chairman of the Simmons-Boardman Publishing Corporation, was awarded first prize in Class II.

"The nine *Railway Age* editors who won first prize in Class III," says the A. B. P. announcement, "wrote a series of 25 articles on operating economies that won wide-spread attention in their industry. At the time, conditions in the railway field were such as could be met only by improved service and further reductions in operating costs. The series dealt with 25 phases of railway operation and pointed out methods of economy that had been tried and proven sound. It was a series of bed-rock fact articles that R. H. Aishton, president of the American Railway Association, called 'a piece of real constructive work that should be most helpful to the railways of the country.'"

The article for which Mr. Steel received honorable mention in Class III was characterized in the announcement as a "remarkable summary, in *Railway Age*, of the total purchases and inventories of supplies by the railways of the nation annually from 1916 to 1930 inclusive. These comprehensive tabulations and the interpreting article won interested attention not only from railways but from industries that serve them. This was evidenced by its broad re-use by business and governmental agencies."

The A. B. P. Medal, the award in Class I, was won by Electrical Wholesaling before that publication changed its name from The Jobber's Salesman last January.

Club Meetings

The Southern & Southwestern Railway Club will hold its next meeting at the Ansley Hotel, Atlanta, Ga., on November 17. George Fogg, of the Superheater Company, will present a paper on superheaters and throttles, featuring the type E superheater and the multiple throttle. The annual election of officers will take place at this meeting.

Employee Leagues Active in South

At a mass meeting called by the Railroad Employees' and Taxpayers' Association of Norfolk and Portsmouth, Va. on October 28, the audience exceeded the capacity of the Norfolk municipal auditorium, which seats 4,000. The principal speaker was W. L. Stanley, chief public relations officer of the Seaboard Air Line. Candidates for Congress of both major political parties were present and delivered addresses stating their stand on the transportation problem. The meeting was held to a strictly non-political plane, however, and campaign issues were not discussed.

The assembly was the largest mass meeting ever held in Norfolk. After the capacity of the hall, 4,000, was reached, the doors were closed and, it is estimated, at least 1,000 persons who sought to gain admittance could not be accommodated. On the stage were 45 men and women prominent in railroad and civic affairs. On the Eastern Shore of Virginia the farmers in increasing numbers are affiliating with the Railroad Employees and Taxpayers Association.

Railroad employees in Florida met at Jacksonville on October 29-30 to perfect plans for a state-wide organization.

More than 3,000 were in attendance. The name, Railway Employees' League of Florida, was chosen and the following officers were elected: President, William S. Bailey, chief clerk to assistant general manager, Atlantic Coast Line, Jacksonville; vice-president, Walter Klein, chief clerk to assistant agent, Southern, Jacksonville; secretary, Emory W. Cochran, member of assistant general manager's staff, Atlantic Coast Line, Jacksonville; treasurer, E. H. Hinson, chief clerk to master mechanic, Seaboard Air Line, Jacksonville.

P. R. R. and Reading To Merge N. J. Lines

Consolidation expected to benefit communities and eliminate duplicate facilities

Early consumption of pending plans to consolidate Pennsylvania and Reading lines in southern New Jersey was forecast in a joint statement issued on October 31 by W. W. Atterbury, president of the Pennsylvania, and Charles H. Ewing, president of the Reading. The statement follows:

"Since last February, when officials of the two railroads met with Governor Moore and the members of the Board of Public Utility Commissioners at Trenton, the managements have unceasingly endeavored to agree upon a plan to consolidate the West Jersey & Seashore and the Atlantic City, constituting, respectively, the lines of the Pennsylvania and Reading systems in southern New Jersey.

"As a result of these efforts it is our privilege to announce that the negotiations between the two companies have progressed to a point of agreement which is in substantial accord with the suggestions made by Governor Moore and the Board of Public Utility Commissioners.

"While the managements of the two proprietary companies have agreed on the broad principles of the consolidation, necessarily there remain a number of details to be arranged in conformity with statutory requirements, including necessary commission approval as well as approval of the respective boards of directors.

"Among the public benefits resulting from consolidation will be the elimination of grade crossings, in accordance with the order of the Public Utility Commission of New Jersey, and the erection of a new union station at Atlantic City, an improvement project sponsored by the Board of Public Utility Commissioners of New Jersey.

"We believe that consolidation will be in the interest of, and have a beneficial effect upon, the future development of South Jersey, at the same time relieving the railroads of the necessity for maintaining a duplication of service and facilities which, under the changed conditions of recent years, is no longer justified or required in meeting the needs of the public.

"The merging of these properties, we believe, will also be in harmony with the expressed desires of the interested communities as well as the financial, commercial, industrial, agricultural and civic agencies of South Jersey."

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Western Trunk Line Rate Case Reopened

Commission grants carrier petitions for purpose of bringing record up to date

In response to petitions filed by the Western Trunk Line and Official Classification territory railroads, and others, the Interstate Commerce Commission on October 28 issued an order for a re-opening of the Western Trunk Line class rate case, in which its general revision became effective on December 3, 1931, for further hearing for the purpose of bringing the record up to date, particularly with reference to the interterritorial rates between the East and the West which were reduced, and has assigned it for hearing at Chicago beginning December 7 before Examiners Koebel and Paulson. This case is an outgrowth of the one in which the western roads sought the relief of a general 5 per cent increase back in 1925. After the commission had denied the general increase the roads asked for a revision of class rates and the commission in 1930 prescribed a general revision on the basis of mileage scales which included increases on the short hauls and reductions on the long hauls and the interterritorial rates between the East and West. It estimated that the net result would be an increase in revenues but the railroads have found it difficult to obtain the benefit of the increases, because of truck competition, while their revenues have been reduced on the longer hauls. The western roads asked for expedited consideration and temporary relief so as to permit them to restore the former method of making rates by the combination of intermediate factors; and the eastern lines asked a modification of the order with regard to all interterritorial rates prescribed in the order. The commission declined, however, to suspend the rates or to grant temporary relief.

The commissions in the eleven states lying wholly or partly in W. T. L. territory are invited to cooperate in this reopening under arrangements similar to those made in the original proceeding. The reopening is not limited to rates on interterritorial and long-haul traffic. The order places in issue the entire all-rail adjustment prescribed on the classes of freight described in the governing classifications. Butter, eggs, and poultry are excepted. Commodity rates, as such, are not in issue. The proceedings have not been reopened with respect to rates between W. T. L. and southern territories, nor as to lake-rail rates.

The matter of classification ratings was not in issue in the original proceeding, and it will not be considered under the present order. This reopening does not contemplate the reception of evidence bearing upon particular articles of traffic by which parties seek to prove that such articles should be accorded special treatment apart from the grouping indicated above.

Further, says the Commission, "it is appropriate to mention the order entered December 1, 1931. By that order this proceeding was reopened and broadened as to ratings governing interterritorial traffic. That reopening contemplates a detailed investigation of alleged undue prejudice or preference in rates on specific articles arising from differences between the ratings in western and official classifications, and exceptions thereto, and from differences in percentage relations of classes in the W. T. L. and eastern adjustments. Evidence with respect to the issues defined in the order of December 1, and accompanying notice of December 3, 1931, will not be heard as a part of this reopening, but should be presented at a hearing or hearings later to be assigned in conformity with that order."

It will be the purpose of the commission to expedite the hearings to the extent possible, without depriving any interested party of a reasonable opportunity to introduce evidence. It is hoped that the parties will co-operate with one another with a view to the avoidance of duplication.

The hearing now assigned at Chicago will be confined to respondents' direct evidence and cross-examination thereon. Additional hearings are contemplated in January, 1933, at times and places to be determined after canvass of the situation at the Chicago hearing. At such additional hearings evidence by all other parties will be received, followed by respondents' rebuttal at the last hearing.

Court Refuses Injunction Against Terminal Association

The United States circuit court of appeals has upheld United States District Judge Charles B. Davis of St. Louis, Mo., who ruled that the Central Transfer Company could not bring a suit for an injunction to prevent the Terminal Railroad Association of St. Louis from carrying out a contract with the Columbia Terminals Company, giving the latter concern all its transfer business. The Central Transfer Company had charged that the contract was a monopoly in restraint of trade and in violation of the anti-trust laws.

Kansas Railway Employees Organize

Through a series of public mass meetings at strategic points throughout the state, railway employees in Kansas are being organized to co-operate with state authorities in enforcing state regulations pertaining to the operation of buses and trucks. The employees are also being urged to petition their representatives in the state legislature to pass certain amendments to the state bus and truck law.

On October 25 a mass meeting of employees was held in the high school auditorium at Topeka. Speakers before this meeting included Mayor Omar Ketchum, of Topeka; Charles W. Steiger, attorney for the Kansas Public Service Commission; D. S. Farley, assistant general manager, Atchison, Topeka & Santa Fe, who presided; Thomas N. Mulloy, director of traffic for the Public Service Commission, and M. W. Jencks. Other meetings were held at Arkansas City, Pittsburgh and Coffeyville. Following the meeting at Topeka, all of the employees present were furnished with cards telling how to make reports of highway traffic violations by buses and trucks. It is planned to supply all railway employees of the state with such cards.

No Rail-Highway Body Moratorium Agreement

Joint committee abandons plan to delay legislative proposals pending study

Because "further canvass of the situation makes it clear that . . . it would be impracticable to ask either the railway group or the highway users groups to discontinue their efforts in support of or opposition to proposed legislation," the Joint Railway-Highway Users Committee (see *Railway Age* of October 29, page 619), at a meeting on November 2, abandoned a previous agreement, announced in an October 31 release, to the effect that "pending their examination of the facts and their formulation of conclusions," both sides would refrain from urging or opposing specific motor carrier legislation for presentation before the state legislatures to assemble in January.

William J. Cunningham, James J. Hill Professor of Transportation, Harvard Graduate School of Business Administration, has agreed to serve as executive secretary of the committee and he will have as assistants men with technical knowledge assigned by the railroads and the highway users.

The statement issued after the November 2 meeting and revealing the altered agreement was a joint announcement of W. W. Atterbury, president of the Pennsylvania and chairman of the railway members, and Alfred H. Swayne, vice-president of the General Motors Corporation, who heads the joint committee's group representing highway users. It reads as follows:

"The session was largely devoted to conference with Professor William J. Cunningham, technical expert of the committee, concerning the field of data necessary to be covered in formulating the conclusions of the committee.

"In its study of the problem the joint committee would welcome suggestions from anyone interested. Such suggestions should be made to Professor William J. Cunningham, Room 381, 380 Seventh avenue, New York City.

"Members of the joint committee of railroads and highway users discussed the possibility that, pending recommendations, all interests would refrain from urging or opposing the passage of specific legislation by the various state legislatures which will consider the subject at their forthcoming sessions.

"Further canvass of the situation, however, makes it clear that in view of the length of time it would take to properly investigate the questions before the committee, it would be impracticable to ask either the railway group or the highway users groups to discontinue their efforts in support of or opposition to proposed legislation.

"It is expected that the agreement which we anticipate the joint committee will reach will be so fair toward all interests that it will be possible ultimately to obtain support from all such interests for the committee's recommendations."

The October 31 release predicted that

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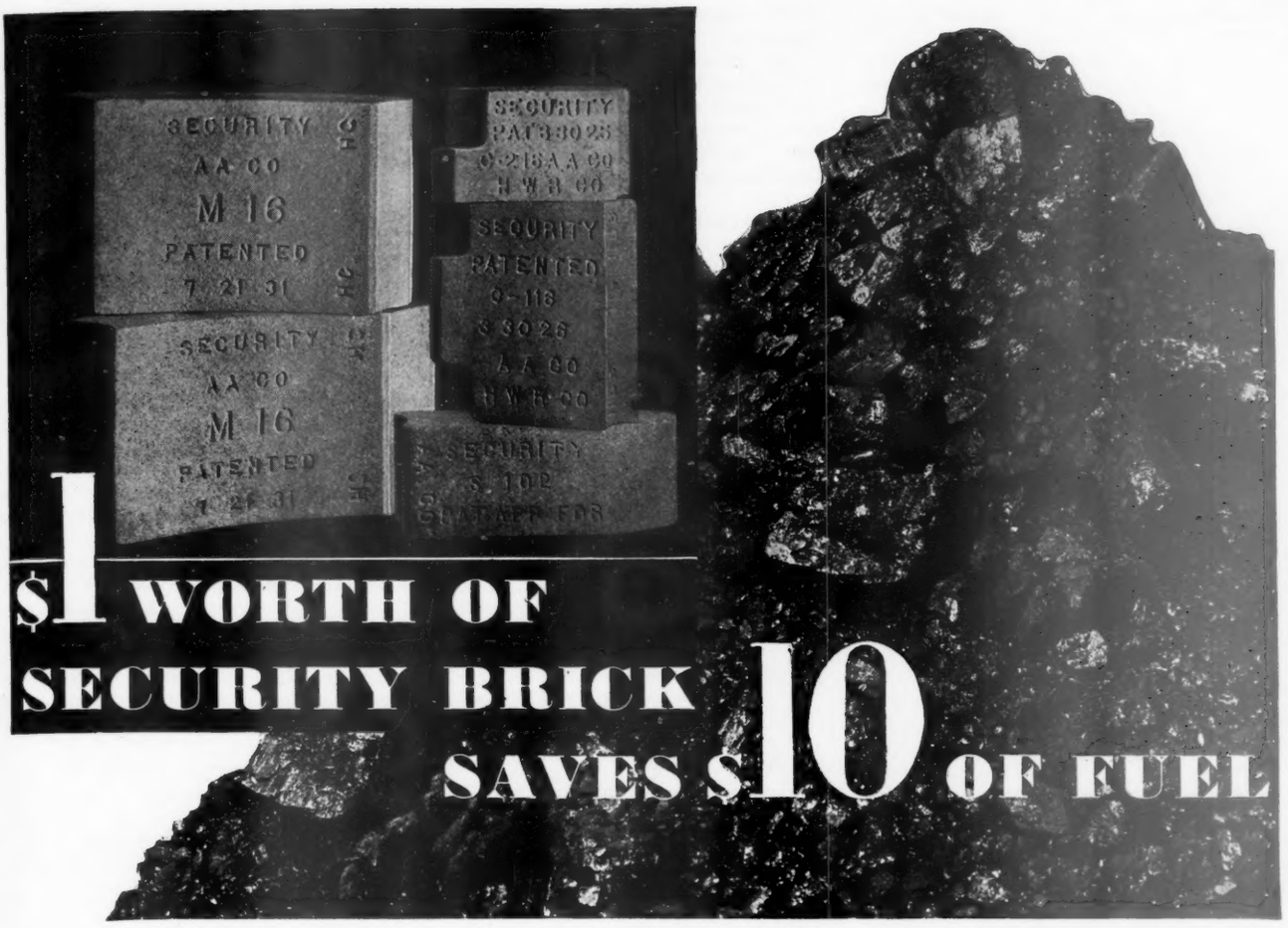

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"Some degree of harmony instead of open warfare soon will mark the relations of the great transportation interests of the country, if the hopes of the members are realized."

The situation, it continued, has been brought to a head because the present "conflict of opinion" and "acrimonious argumentation" is such that state legislatures, "desirous of being perfectly fair to both the railroads and the highway users, have had great difficulty in determining the wise and equitable policy to pursue." Because the legislatures of some 44 states assemble in January it is regarded "as of paramount importance to everybody concerned that a careful examination of all the facts should be made by a group of competent representatives of both the users of the highways and of the railroads. If then on the basis of such examination of the facts, conclusions can be agreed upon as to what will be helpful to all interests and to the public, such consensus of opinion can be laid before all of these state legislatures to assist them in intelligently drafting whatever new laws may be regarded as necessary concerning the highways."

This previous release also contains a statement from Mr. Swayne which reads in part as follows:

"We realize fully the difficulties we are going to encounter, but if we can sit down and listen to each other's arguments and study our respective problems, I believe that we will find that we have more in common than is now generally believed. The users of the highways are not undertaking this task of adjustment with any idea of obtaining for themselves some special advantage over the railroads. As a matter of fact, we are keenly interested in the success of the railroads. We need the railroads, and the railroads are dependent to a great extent on the maintenance of highway transportation. The interests of the two groups join at many points, and our task is largely one of ascertaining by what means the best interests of both can be conserved.

"Regulation of highway traffic to a certain degree is both unavoidable and necessary. We do object, however, to regulation that approaches the point of strangulation, because those who have come to depend upon highway transportation cannot now dispense with it, particularly in the field of short hauls, regardless of the efficiency of the railroads and the service they render. Nor do we object to taxation as such, but we cannot submit without protest to punitive taxes, especially when they approach the point of confiscation. . . .

"The railway executives and the representatives of the highway users are, I am confident, approaching their study of the existing transportation problems with entirely open minds and will, if possible, reach some workable understanding. I have no doubt that Mr. Coolidge and his associates are equally sincere in their search for facts and remedies, and I believe that the Joint Railway-Highway Users Committee will be able to assist materially the Coolidge committee in its work. Such information as reaches the conference table from the highway users and the railways will be available to Mr. Coolidge and his associates.

"We are not looking for a fight. We are looking for some means to eliminate waste effort, and for some agreement that will safeguard the interests of the railroads and the highway users and at the same time protect the public interest."

Newsprint Paper Investigation Re-Opened

The Interstate Commerce Commission has re-opened for further hearing its proceeding of investigation of the rates on newsprint paper to points in Official and Southern classification territories, which has been in progress for several years, to bring up to date the record which was closed in November, 1929. A proposed report by Examiner Howell was made public in August recommending a general revision of the rates.

Lumbermen to Ask Cut in Freight Rates

At a meeting at the Congress hotel, Chicago, on October 24-26, the National Lumber Manufacturers' Association initiated action for reductions in railroad freight rates on lumber, ranging from 15 to 25 per cent. It was pointed out at the meeting that although the lumber industry would prefer to ship by rail, because of quicker and safer service and less damage, with present rate schedules it is cheaper to ship lumber to the Chicago market from the Pacific Northwest via the Panama Canal to the Atlantic seaboard and then by rail to Chicago.

The association decided not to ask for a blanket reduction in freight rates, but rather to urge the lumber interests in the various parts of the country to apply locally for relief. Under the plan adopted, the Pacific Northwest lumber companies will ask a 20-per cent reduction in rates on lumber to Chicago, while those in the south will ask for a 25-per cent reduction to Chicago.

Railway Treasury Officers' Association

The Railway Treasury Officers' Association held its annual meeting in New York City in October 21. A committee on modification of income tax regulations summarized the results of the canvass of bondholders conducted by a number of carriers with a view of securing the filing of corrected ownership certificates after the close of the year, indicating the taxable status of the bondholders, such certificates to be substituted for those filed with the debtor corporation during the year in which exemption from the tax was not claimed. This campaign has effected substantial savings.

The federal tax on checks and other matters were discussed at considerable length, with particular reference to agreements with banks. There was discussion of Canadian exchange, and a central bureau for collection of freight bills. The president of the association for the ensuing year is I. W. Booth (Norfolk & Western) Philadelphia, Pa.; vice-president, J. G. Enderlin (D. L. & W.); secretary, L. W. Cox, Broad Street Station Building, Philadelphia, Pa. The executive committee consists of the president, the vice-president and R. P. Ahrens (N. Y. C.), F. J. Buller (C. N.), R. E. Connolly (Ill. Cent.) F. T. Dickerson (Cent. of N. J.), H. B. Fink (A. T. & S. F.), H. Hurst (P. R. R.), J. G. Walsh (Erie), J. Welch (C. M. St. P. & P.) and James Williams (Alton).

Railways in Rate Fight on Sugar

Hearings were begun before Examiner W. A. Disque of the Interstate Commerce Commission at Washington on October 25 and have continued into this week on the proposal of the southern railways to make drastic reductions in their freight rates on sugar from Gulf and south Atlantic ports to the Ohio river crossings and beyond which have been suspended by the commission on protests made by the barge lines operating on the Mississippi river and by eastern railways and shippers. The day the hearing was begun the eastern lines had also filed tariffs proposing similar reductions from eastern ports. The reduced rates, made to meet water and truck competition, are illustrated by the rate from New Orleans to Chicago, now on a basis of 54 cents per hundred pounds with a carload minimum of 40,000 pounds, which it is proposed to cut to 37 cents with a minimum of 60,000 pounds and 28 cents with a minimum of 80,000 pounds. The eastern lines also proposed a rate of 35 cents from Baltimore to Chicago. The general defense of the proposed reductions from the South was offered by C. C. Cameron, vice-president of the Illinois Central.

The Canadian Roads in September

For the month of September both gross and net revenues of the Canadian Pacific were higher than in the corresponding month of last year, and constituting the first time in nearly two years that the road has been able to report such an improvement. The operating ratio in September of this year was 72.10 compared with 75.18 in September of last year.

Net revenues for railway for the month under review totalled $3,722,576, as compared with $3,099,854 in September of last year, an increase of $622,721. Gross revenues for September of this year amounted to $13,344,078, against $12,486,517 in the same month of last year, an increase of $857,561. Operating expenses at $9,621,502 showed an increase of $234,839 over the $9,386,662 reported for September of last year.

For the nine months ended with September net revenues totaled $10,531,370, as compared with $12,792,166 in the corresponding period of last year, a decrease of $2,260,796. Gross for the nine-month period at $91,224,950 showed a decrease of $17,362,685 from gross for the same period of last year, while operating expenses at $80,693,580 showed a decrease of $15,101,889.

The Canadian National in September had net revenue of $2,828,833, as compared with $1,387,081 in the corresponding month of last year, an increase of $1,441,752. Gross for the month showed a decrease of slightly over a million dollars, but operating expenses were reduced by nearly 2½ millions.

For the nine months period, January 1 to September 30, net revenue totaled $6,200,117, as compared with $3,565,770 in the corresponding period of 1931. Operating expenses in the nine months showed a reduction of $27,960,180 more than offsetting the $25,325,834 decrease in gross receipts.

New Hampshire Association Elects Officers

The New Hampshire Railway Employees and Citizens Association was organized on October 18, as noted in the *Railway Age* of October 22, page 589. The twelve directors who were elected at that time met in Concord on November 1 to complete the organization.

The following officers were elected: President, Alvin P. Dunbar, storekeeper, Boston & Maine, Concord; first vice-president, Harry L. Alexander, cashier of the Mechanics National Bank, Concord; second vice-president, Major Arthur E. Goyette, president, First National Bank, Peterborough; third vice-president, H. E. Smith, manager of the Pike-Norton Company, Pike; fourth vice-president, George Hurd, representative of the Railway Express Agency, Concord; fifth vice-president, Herbert W. Davis, chief clerk, Portland division, Boston & Maine, Dover; sixth vice-president, John H. Kennedy, mechanic, Boston & Maine, Keene; recording secretary and financial secretary, R. H. Billings, Boston & Maine, Concord; corresponding secretary, Paul J. Parmenter, Boston & Maine, Concord; treasurer, M. J. Wills, general agent, Boston & Maine, Manchester.

The membership of the association now numbers 2,802, approximately 48 percent of which is not connected with the railroads. Almost every city and town on New Hampshire railroad lines is represented in the membership.

Loans By R. C. C.

The Railroad Credit Corporation on November 1 had either made or authorized loans to railroads to meet their fixed interest obligations totaling $35,500,719, according to the monthly report of that corporation filed with the Interstate Commerce Commission. Collection of rate increases under Ex Parte 103, according to the report, totaled $40,847,002 in the first eight months this year, the increase having become effective January 4. The amount derived from the increase during August amounted to $5,082,396.

In a letter addressed to chief executives of participating carriers and accompanying the report, E. G. Buckland, president of the Railroad Credit Corporation, said: "Loans applied for aggregate $96,235,457, of which $55,055,213 has been withdrawn from the docket, representing requests beyond the scope of the plan or funds which could be secured from other sources. The remaining $41,180,244 is divided between approved loans of $36,565,969 and deferred items of $4,614,275. The amount deferred does not indicate the limit of demands to be made on the fund in the near future. Loans made total $35,441,469 and repayments $1,065,250, leaving the net outstanding $34,376,219.

"Full utilization is being made of funds available for loans to meet current requirements. The cash balance of $2,251,910 being subject to demands in the immediate future to take up loan commitments of $1,124,500, the actual working balance is $1,127,410. With the approaching interest requirements for the end of the calendar and fiscal year, this balance is not as large as desired. Nevertheless, the indications at this time are that the fixed interest obligations of major Class I carriers for the remainder of the year will be duly met. All commitments to the Reconstruction Finance Corporation to take over advances made by it to participating carriers during the period in which your Corporation was without resources, have been fulfilled."

Committee Studies Transport Co-Ordination

Plans for developing greater co-ordination and more equitable regulation of competing forms of transportation were laid at the first meeting at Washington, D. C., on November 1, of a special committee of the Chamber of Commerce of the United States, appointed to make an extensive study of the problems of the entire national transportation system.

Present chaotic conditions in the different transportation fields, detrimental to shippers and to the general public, in the opinion of the committee, are due in a large measure to lack of a well ordered and equitable system of regulation. It was the feeling of the committee that these conditions can be corrected. A constructive program of federal and state legislation for the accomplishment of this purpose was outlined and plans were made for the development of a program in definite form at another meeting of the committee.

It was agreed that the main consideration before the committee involves the new relationship to railroad transportation of other forms of transportation. The principal other forms discussed by the committee are highway transportation, embracing buses and trucks; and water transportation, embracing coastwise and intercoastal shipping, transportation on the Great Lakes and that on the inland rivers and canals. In each case the committee will seek to harmonize the various interests concerned to enable each of these forms of transportation to develop so as to best serve the public without jeopardizing necessary rail service.

Fourth Section Relief Recommended to Meet Barge Competition

Fourth section relief to permit railways to reduce rates on gasoline and other petroleum products to meet barge competition is recommended in two proposed reports by Examiners E. J. Hoy and P. S. Peyser, of the Interstate Commerce Commission, made public on October 31. In one case they recommend that the rail lines operating in Mississippi, Alabama and southeastern Louisiana be authorized to maintain rates on gasoline, in tank-car-loads, from the New Orleans-Baton Rouge group and Mobile, Ala., to various river points in Alabama without observing the long-and-short-haul provision or rate relationships established by the commission in its general petroleum investigation; this because the Pure Oil Company, through a subsidiary, is operating a tank barge service for its own products and has offered to carry gasoline of competing oil companies. The railroads do not expect that their proposed rates will attract from the barge routes any traffic of companies that have already made investments in water facilities, but they were unable to file the fourth section application before the barge service was established, because the law does not permit fourth section relief against potential water competition.

In another report the examiners recommend that the Illinois Central and the Yazoo & Mississippi Valley be authorized to maintain reduced rates on refinery gasoline, kerosene and naphtha, in carloads, from the New Orleans-Baton Rouge group to Memphis, Tenn., but that the applications be denied as to similar relief on other petroleum products and related commodities and as to rates to Paducah, Owensboro and Louisville, Ky.; this on the ground that reductions to those points would seriously disturb the existing rate structure, whereas those to Memphis would not have that effect, because the water-borne movement of petroleum products from New Orleans is the dominating and controlling factor. The applicants had estimated that if they regained all of the traffic now moving by water it would yield a maximum of $1,149,081, and that the loss resulting from the reductions proposed would amount to $154,465.

Pennsylvania Work-Sharing Plans

W. W. Atterbury, president of the Pennsylvania, in a statement issued on October 30, commented on the "Share the Work" movement and outlined what has been accomplished along the same lines on the Pennsylvania through the co-operative efforts of employees and the management. General Atterbury's statement follows:

"Representatives of the employees of the Pennsylvania and of the management have just concluded negotiations looking toward the further distribution of available work among all classifications of employment on the railroad. This was accomplished through a series of conferences in which practical plans were perfected for dividing up available work.

"In the various classifications of engine and train service, it has been arranged that when the earnings of an individual employee reach an agreed amount, he gives way to another employee until the beginning of the following month. Work among clerical forces has been divided on a specified number of days' work per month, while shopmen, trackmen, signal and telegraph department employees are all working on a reduced program of working time.

"We are about to start work in our shops on building 1,285 new box cars, and making heavy repairs to other box and gondola cars, which is now possible through the $2,000,000 'work loan' just received from the Reconstruction Finance Corporation.

"Heavy freight car repair work assigned to Terre Haute, Ind., shops, to make way at other points for the new equipment, will mean more employment there for approxi-

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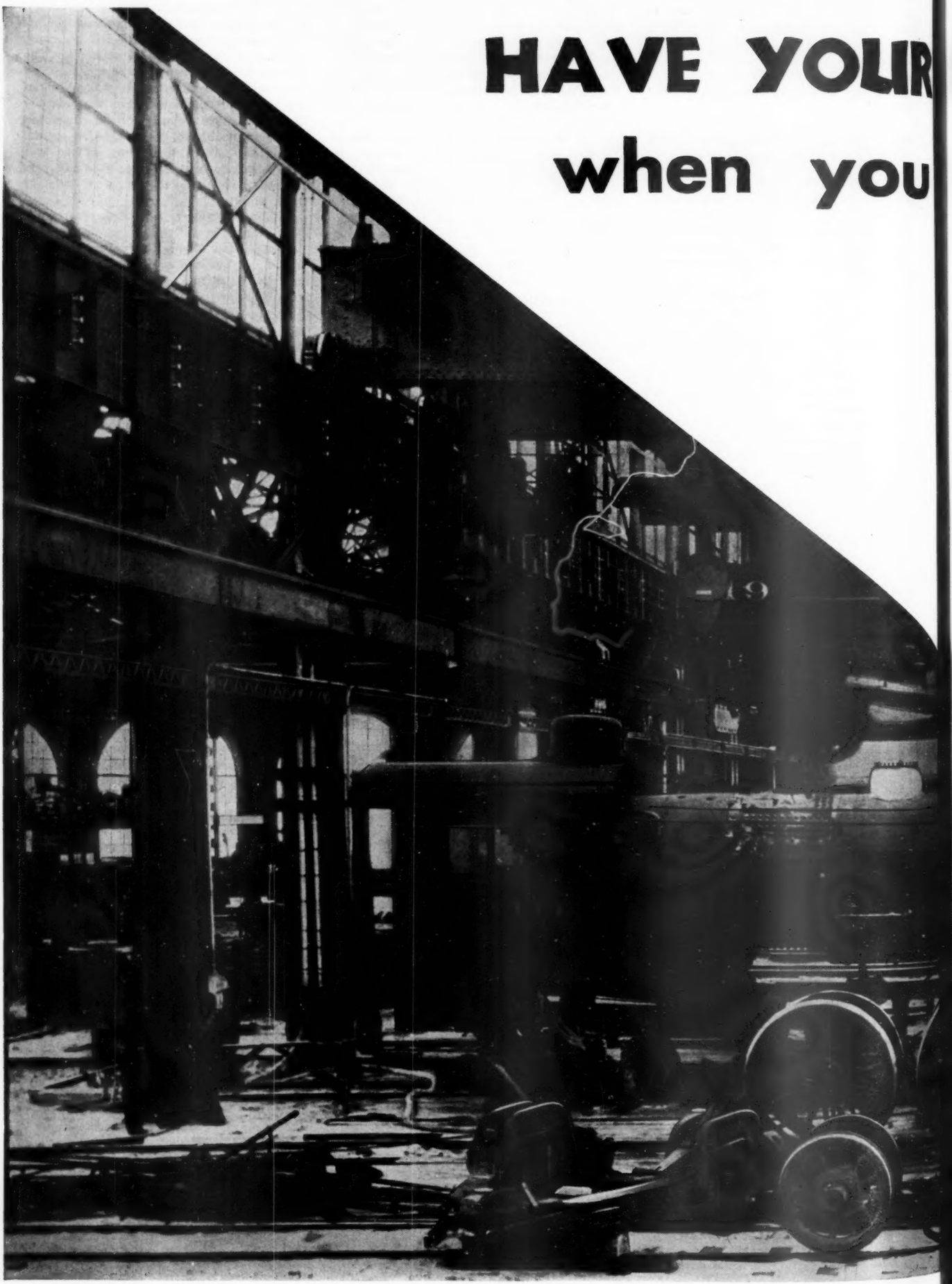
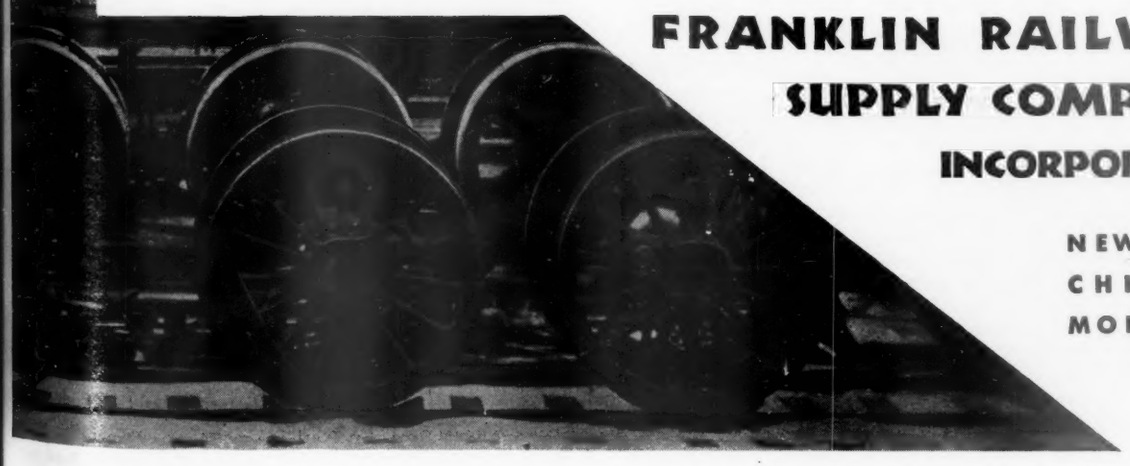


EYES ON MAINTENANCE

design new locomotives

« If you want greater mileage and lower repair costs, start with the design of the locomotive. Build low maintenance into its fundamentals. « For protection to its foundation include Franklin Automatic Adjustable Driving Box Wedges. They prevent slack from getting a start and increase the life of bearings. « Then, too, the modern locomotive should have the lower maintenance that results from the Tandem Main Rod Drive. This modern improvement distributes piston thrust over two axles and substantially reduces bearing pressures and track stresses. « Be sure the automatic firedoor is by Franklin. Franklin Firedoors have the minimum of wearing parts and each of these is specially prepared for long life so that low maintenance is an acknowledged quality. « To keep driving boxes assured of a constant and adequate supply of lubricant specify Franklin Driving Box Lubricator and Spreader. This improved device not only keeps bearings cool under exacting conditions of high speed long runs, but also provides quick maintenance at low cost. « And in considering lower maintenance, don't overlook the effect of The Locomotive Booster. By adding power for starting and for emergencies, it does the work of an extra pair of drivers. But since the Booster is normally inoperative, the maintenance expense on 78 railroads averages only half-a-cent per mile as against five to ten cents per mile for an additional pair of drivers. « View every factor of the new locomotive from the standpoint of its effect on maintenance, because maintenance is an outstanding problem.



FRANKLIN RAILWAY SUPPLY COMPANY INCORPORATED

NEW YORK
CHICAGO
MONTREAL

mately 150 shopmen. Similar work assigned to the Mahoningtown shops near New Castle, Pa., will mean increased employment for about 49 additional men in that territory, beginning at once.

"On the basis of working 40 hours a week, the erection of the new box cars will give about 133 additional men employment at Pitcairn Shops, and an equivalent of about 132 additional men at Enola Shops. At our Altoona Works, the new work will amount to an equivalent of about 330 additional men.

"Working each group of employees a lesser number of hours per week would, naturally, result in more shopmen being affected. Our aim is to divide the work so that the greatest possible number of workers may have an opportunity for at least some employment and share in the benefits of the Government's 'work loan.' This will be supervised by the shop officials at each point in a manner which will best meet local conditions.

"The couplers, draft gears, air brakes, castings, doors and the corrugated ends of these new cars will be purchased in the open market. To manufacture them will furnish employment to practically the same number of men in the plants of the railway supply and equipment factories as will be working on the actual erection of the cars in our own shops.

"Material orders are being issued with the utmost dispatch, and erecting the cars will be started immediately on receipt of the material. Some of this is at present under way. We are planning to spread all of this work over a period of between five and six months."

F. E. Williamson Sees Danger in Crushing Load of Taxes

The imperative necessity to the railroads of a cut in governmental costs and a resulting reduction in the national tax burden, which now amounts to $14,500,000,000, or $125 annually for every person in this country, is stressed in a statement issued on October 30 by Frederick E. Williamson, president of the New York Central.

Mr. Williamson warned that the crushing load of taxes the railroads are carrying has reached the danger zone, pointing out that, whereas in 1931 taxes paid by the New York Central were 42.88 per cent of the company's net revenue from railway operations, before taxes and fixed charges, in the first eight months of this year tax accruals had risen to 51.63 per cent, or more than half of the company's net revenue from railroad operations.

"Our taxes," said Mr. Williamson, "have reached a point where they are stifling the purchasing power of the railroads, which normally are the country's largest single purchaser. As a result, many of the largest industries in the country, that normally employ many thousands, are suffering severely because of the inability of ourselves and other railroads to purchase needed supplies even on a scale commensurate with our reduced traffic. We are glad to pay reasonable taxes on fair assessments, but we want to see a reduction in taxes that is achieved by lowering the needlessly high cost of government.

"The railroads are particularly interested in this matter for the reason that with them taxation is likely to play an important role in their future. In 1931, the New York Central's net revenue from railroad operations was $75,124,502 before taxes and fixed charges and its tax bill was $32,215,328, or 42.88 per cent of its net revenue from railway operations. In the first eight months of this year, its net operating revenue was $41,388,950 before taxes and fixed charges and its tax bill $21,370,271, or 51.63 per cent of its net revenue from railway operations before taxes and fixed charges. For the railroads of the country net operating revenue before taxes and fixed charges for the first eight months was $429,367,150 and their taxes were $197,967,469, or 46.106 per cent of their revenue from railway operations. No railroad or other business concern can long continue to pay half its net operating revenue in taxes and remain solvent."

September Earnings Show Improvement

Class I railroads for the first nine months of 1932 had a net railway operating income of $202,456,126, which was at the annual rate of return of 1.04 percent on their property investment, according to reports compiled by the Bureau of Railway Economics. In the first nine months of 1931, their net was $409,337,148, or 2.09 percent. Operating revenues for nine months totaled $2,363,830,088, compared with $3,279,215,951 for the same period in 1931, or a decrease of 27.9 percent. Operating expenses amounted to $1,851,366,489, compared with $2,524,366,240 for the same period one year ago or a decrease of 26.7 percent.

Class I railroads in the nine months paid $221,213,744 in taxes compared with $245,582,455 for the same period in 1931, or a decrease of 9.9 percent. For September alone, the tax bill was $23,760,919, a decrease of $2,493,985 under September the previous year.

Sixty-eight Class I railroads failed to earn expenses and taxes in the first nine months of 1932, of which 21 were in the Eastern district, 16 in the Southern and 31 in the Western.

For September the net railway operating income was $49,646,869, which, for that month, was at the annual rate of return of 1.59 percent on their property investment. In September, 1931, the net was $55,428,260 or 1.77 percent.

Operating revenues for September amounted to $272,473,363, compared with $350,255,735 in September, 1931, a decrease of 22.2 percent. Operating expenses totaled $189,376,913, a decrease of 26.7 percent.

As compared with August the operating revenues increased 8 percent, while expenses remained practically stationary, so that the net for September was 75 percent higher than in August.

In the Eastern District for the nine months the net was $145,770,773, at the rate of 1.56 percent. For the same period in 1931, their net was $215,525,063, or 2.32 percent. Operating revenues in the Eastern district for nine months totaled $1,211,813,729, a decrease of 26.2 percent below the corresponding period the year before, while operating expenses totaled $913,293,568, a decrease of 27.6 per cent. Class I railroads in the Eastern district in September had a net of $25,227,837, compared with $26,320,630 in September, 1931.

Class I railroads in the Southern district for the nine months had a net of $11,573,610, at the rate of 0.47 percent. For the same period in 1931, their net amounted to $33,884,254, or 1.38 percent. Operating revenues for the nine months amounted to $284,013,329, a decrease of 29.5 percent, while operating expenses totaled $239,923,307, a decrease of 27.4 percent. For September the net was $4,243,018, compared with $2,123,578 in September last year.

In the Western district for nine months the net was $45,111,743, at the rate of 0.58 percent. For the same nine months in 1931, they had a net of $159,927,831, or 2.04 percent. Operating revenues in the Western district for nine months amounted to $868,003,030, a decrease of 29.7 percent, while operating expenses totaled $698,149,614, a decrease of 25.1 percent. For September alone, the net in the Western district amounted to $20,176,014. The net in September, 1931, totaled $26,984,052.

CLASS I RAILROADS—UNITED STATES

	1932	1931	% Decline
Month of September			
Total operating revenues	$272,473,363	$350,255,735	22.2
Total operating expenses	189,376,913	258,201,567	26.7
Taxes	23,760,919	26,254,904	9.5
Net railway operating income	49,646,869	55,428,260	10.4
Operating ratio	69.50%	73.72%	...
Rate of return on property investment	1.59%	1.77%	...
Nine Months Ended September 30			
Total operating revenues	$2,363,830,088	$3,279,215,951	27.9
Total operating expenses	1,851,366,489	2,524,366,240	26.7
Taxes	221,213,744	245,582,455	9.9
Net railway operating income	202,456,126	409,337,148	50.5
Operating ratio	78.32%	76.98%	...
Rate of return on property investment	1.04%	2.09%	...

Meetings & Conventions

The following list gives names of secretaries, date of next or regular meetings and places of meetings.

AIR BRAKE ASSOCIATION.—T. L. Burton, Room 5605, Grand Central Terminal Building, New York City.

ALLIED RAILWAY SUPPLY ASSOCIATION.—F. W. Venton, Crane Company, 836 S. Michigan Ave., Chicago. To meet with Air Brake Association, Car Department Officers Association, International Railroad Master Blacksmiths' Association, International Railway Fuel Association, International Railway General Foremen's Association, Master Boiler Makers Association and the Traveling Engineers' Association.

AMERICAN ASSOCIATION OF FREIGHT TRAFFIC OFFICERS.—W. R. Curtis, F. T. R., M. & O R. R., Chicago, Ill.

AMERICAN ASSOCIATION OF GENERAL BAGGAGE AGENTS.—E. L. Duncan, 332 S. Michigan Ave., Chicago.

AMERICAN ASSOCIATION OF PASSENGER TRAFFIC OFFICERS.—W. C. Hope, C. R. R. of N. J. 143 Liberty St., New York.

AMERICAN ASSOCIATION OF RAILROAD SUPERINTENDENTS.—F. O. Whiteman, Room 800, 1017 Olive St., St. Louis, Mo. Annual meeting, June 13-15, 1933, Cleveland, Ohio.

AMERICAN ASSOCIATION OF RAILWAY ADVERTISING AGENTS.—E. A. Abbott, Poole Bros., Inc., 85 West Harrison St., Chicago. Next meeting, Jan. 21, 1933.

AMERICAN ASSOCIATION OF SUPERINTENDENTS OF DINING CARS.—F. R. Borger, C. I. & L. R. R., 836 Federal St., Chicago.

AMERICAN ELECTRIC RAILWAY ASSOCIATION.—(See American Transit Association.).

AMERICAN RAILWAY ASSOCIATION.—H. J. Forster, 30 Vesey St., New York, N. Y.
Division I.—Operating.—J. C. Caviston, 30 Vesey St., New York.
Freight Station Section.—R. O. Wells, Freight Agent, Illinois Central Railroad, Chicago.

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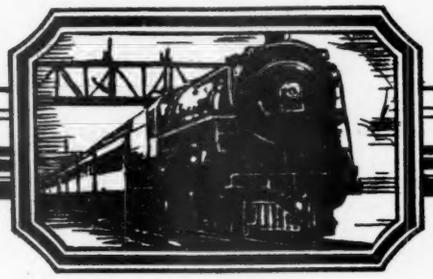

Alco Alco

Mr. R. H. Aishton, President of American Railway Association, in a recent review of Railway Progress, stated—"Greater improvements have been made in the development of steam locomotives within the past ten years than during any similar period in history . . . . As a matter of fact, there has been, especially since 1923, a steady improvement in the types of locomotives constructed."

Now this is the opinion of a big railway man, but let us see just how much it has meant to our railroads in general.

The following table gives by years the number of new locomotives ordered in the past eight years:

Years	Locomotives Ordered
1924	1413
1925	1055
1926	1301
1927	734
1928	603
1929	1212
1930	440
1931	235

A total of 6, 993 locomotives ordered in the past eight years, or an average of 874 per year: and so far this year orders have been nil.

According to the latest figures available Class I railroads at the end of 1931 had 55,400 locomotives available for service.

In other words then, at least 48,407 locomotives on Class I roads today were ordered before the year 1924—we say "at least" because the 6,993 locomotives ordered included all roads and was not confined to Class I roads only. And to make the picture complete we know that the development in locomotive design in the last few years has been such that some of the engines built since 1924 are obsolete today.

Now let us see what the railroads' competitor has been doing. In 1923 there were registered in the United States 1,612,569 motor trucks. In 1931 this registration had jumped to 3,466,303. And in all probability practically the whole 3½ million trucks registered today were bought since 1923.

There is an old saying that the natural way to meet competition is to grow in ability to serve.

Well then, of these two competitors in the transportation field, which one, at least from the standpoint of economy of operation, has been striving the hardest to put themselves in a position to better serve?

American Locomotive Company
30 Church Street New York, N. Y.

Alco Alco

Medical and Surgical Section.—J. C. Caviston, 30 Vesey St., New York.
Protective Section.—J. C. Caviston, 30 Vesey St., New York.
Safety Section.—J. C. Caviston, 30 Vesey St., New York.
Telegraph and Telephone Section.—W. A. Fairbanks, 30 Vesey St., New York. Annual meeting, June 13-15, 1933, Hotel Stevens, Chicago, Ill.
Division II.—Transportation.—G. W. Covert, 59 East Van Buren St., Chicago.
Division III.—Traffic.—J. Gottschalk, 143 Liberty St., New York.
Division IV.—Engineering.—E. H. Fritch, 59 East Van Buren St., Chicago. Annual meeting, March 14-16, 1933, Palmer House, Chicago. Exhibit by National Railway Appliances Association.
Construction and Maintenance Section.—E. H. Fritch, 59 East Van Buren St., Chicago.
Electrical Section.—E. H. Fritch, 59 East Van Buren St., Chicago.
Signal Section.—R. H. C. Balliet, 30 Vesey St., New York.
Division V.—Mechanical.—V. R. Hawthorne, 59 East Van Buren St., Chicago.
Equipment Painting Section.—V. R. Hawthorne, 59 East Van Buren St., Chicago.
Division VI.—Purchases and Stores.—W. J. Farrell, 30 Vesey St., New York.
Division VII.—Freight Claims.—Lewis Pilcher, 59 East Van Buren St., Chicago.
Division VIII.—Motor Transport.—George M. Campbell, 30 Vesey St., New York.
Car Service Division.—C. A. Buch, 17th and H. Sts., N. W., Washington, D. C.

AMERICAN RAILWAY BRIDGE AND BUILDING ASSOCIATION.—C. A. Lichty, C. & N. W. Ry. 319 N. Waller Ave., Chicago.

AMERICAN RAILWAY DEVELOPMENT ASSOCIATION.—J. A. Senter, Ind. Agt., N. C. & St. L. Ry., Nashville, Tenn. Semi-annual meeting, December 1-2, 1932, Hotel Sherman, Chicago, Ill.

AMERICAN RAILWAY ENGINEERING ASSOCIATION.—Works in co-operation with the American Railway Association. Division IV.—E. H. Fritch, 59 East Van Buren St., Chicago, Ill. Annual meeting, March 14-16, 1933, Palmer House, Chicago. Exhibit by National Railway Appliances Association.

AMERICAN RAILWAY MAGAZINE EDITORS ASSOCIATION.—Miss E. Kramer, M-K-T Employees Magazine, St. Louis, Mo.

AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.—G. G. Macina, C., M., St. P. & P. R. R., 11402 Calumet Ave., Chicago. Exhibit by Tool Foremen Suppliers' Association.

AMERICAN SHORT LINE RAILROAD ASSOCIATION.—R. E. Schindler, Union Trust Bldg., Washington, D. C.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS.—Calvin W. Rice, 29 W. 39th St., New York. Railroad Division, Marion B. Richardson, *Railway Age*, 30 Church St., New York.

AMERICAN TRANSIT ASSOCIATION.—Guy C. Hecker, 292 Madison Ave., New York.

AMERICAN WOOD PRESERVERS' ASSOCIATION.—H. L. Dawson, 1104 Chandler Building, Washington, D. C. Annual meeting, January 24-26, 1933, Hotel Sherman, Chicago, Ill.

ASSOCIATION OF RAILWAY CLAIM AGENTS.—H. D. Morris, District Claim Agent, Northern Pacific Ry., St. Paul Minn. Annual meeting, June 21, 1933, Chicago, Ill.

ASSOCIATION OF RAILWAY ELECTRICAL ENGINEERS.—Jos. A. Andreucetti, C. & N. W., Room 411, C. & N. W. Station, Chicago. Exhibit by Railway Electrical Supply Manufacturers' Association.

ASSOCIATION OF RAILWAY EXECUTIVES.—Stanley J. Strong, Transportation Building, Washington, D. C.

BRIDGE AND BUILDING SUPPLY MEN'S ASSOCIATION.—S. A. Baber, High Grade Manufacturing Co., 10418 St. Clair Ave., Cleveland, Ohio. Meets with American Railway Bridge and Building Association.

CANADIAN RAILWAY CLUB.—C. R. Crook, 2276 Wilson Ave., N. D. G., Montreal, Que. Regular meetings, second Monday of each month, except June, July, and August, Windsor Hotel, Montreal, Que.

CAR DEPARTMENT OFFICERS ASSOCIATION.—A. S. Sternberg, M. C. B. Belt Ry. of Chicago, 7926 South Morgan Street, Chicago.

CAR FOREMAN'S ASSOCIATION OF CHICAGO.—G. K. Oliver, 2514 W. 55th St., Chicago. Regular meetings, second Monday of each month, except June, July, and August, Auditorium Hotel, Chicago.

CAR FOREMEN'S ASSOCIATION OF LOS ANGELES.—J. W. Krause, Room 299, 610 So. Main St., Los Angeles, Cal. Club not active at present time.

CAR FOREMEN'S ASSOCIATION OF ST. LOUIS, MO.—J. F. Brady, Main and Barton Sts., St. Louis, Mo. Operation suspended indefinitely.

CENTRAL RAILWAY CLUB OF BUFFALO.—M. D. Reed, 1817 Hotel Statler, McKinley Square, Buffalo, N. Y. Regular meetings, second Thursday of each month, except June, July and August, Hotel Statler, Buffalo, N. Y.

CINCINNATI RAILWAY CLUB.—D. R. Boyd, 2920 Utopia Place, Hyde Park, Cincinnati, Ohio. Regular meetings second Tuesday in February, May, September, and November, Hotel Gibson, Cincinnati, O.

CLEVELAND RAILWAY CLUB.—F. L. Frericks, 14416 Alder Ave., Cleveland, Ohio. Regular meetings second Monday of each month, except June, July and August, Auditorium, Brotherhood of Railroad Trainmen's Building, West 9th St., and Superior Ave., Cleveland.

INTERNATIONAL RAILROAD MASTER BLACKSMITHS' ASSOCIATION.—W. J. Mayer, Michigan Central R. R., Detroit, Mich.

INTERNATIONAL RAILWAY CONGRESS.— January 19-30, 1933, Cairo, Egypt.

INTERNATIONAL RAILWAY FUEL ASSOCIATION.—T. D. Smith, 1660 Old Colony Building, Chicago.

INTERNATIONAL RAILWAY GENERAL FOREMEN'S ASSOCIATION.—Wm. Hall, 1061 W. Wabasha St., Winona, Minn.

MASTER BOILER MAKERS ASSOCIATION.—A. F. Stiglmeier, 29 Parkwood St., Albany, N. Y.

NATIONAL ASSOCIATION OF RAILROAD AND UTILITIES COMMISSIONERS.—James B. Walker, 270 Madison Ave., New York. Annual meeting, November 15-18, 1932, Arlington Hotel, Hot Springs, Ark.

NATIONAL ASSOCIATION OF RAILROAD TIE PRODUCERS.—(See Railway Tie Association.).

NATIONAL RAILWAY APPLIANCES ASSOCIATION.—C. W. Kelly, Suite 322, 910 South Michigan Ave., Chicago. Exhibit during A.R.E.A. Convention, March 13-16, 1933, Coliseum, Chicago.

NATIONAL SAFETY COUNCIL.—Steam Railroad Section: J. L. Walsh, (Honorary vice-chairman), Supt. Safety, M.-K.-T. R. R. Dallas, Tex.

NEW ENGLAND RAILROAD CLUB.—W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass. Regular meetings, second Tuesday of each month, except June, July, August and September, Hotel Statler, Boston, Mass.

NEW YORK RAILROAD CLUB.—D. W. Pye, 30 Church St., New York. Regular meetings third Friday of each month, except June, July and August, 29 W. 39th St., New York City.

PACIFIC RAILWAY CLUB.—W. S. Wollner, P. O. Box 3275, San Francisco, Cal. Regular meetings second Thursday of each month, alternately in San Francisco and Oakland.

RAILWAY ACCOUNTING OFFICERS' ASSOCIATION.—E. R. Woodson, Transportation Building, Washington, D. C.

RAILWAY BUSINESS ASSOCIATION.—P. H. Middleton, (Treas. and Asst. Sec.), First National Bank Building, Chicago, Ill. Annual meeting, November 10, 1932, Commodore Hotel, New York, N. Y.

RAILWAY CLUB OF PITTSBURGH.— J. D. Conway, 1841 Oliver Building, Pittsburgh, Pa. Regular meetings, fourth Thursday of each month except June, July and August, Fort Pitt Hotel, Pittsburgh, Pa.

RAILWAY ELECTRICAL SUPPLY MANUFACTURERS ASSOCIATION.—Edward Wray, 9 S. Clinton St., Chicago. Meets with Association of Railway Electrical Engineers.

RAILWAY FIRE PROTECTION ASSOCIATION.—R. R. Hackett, Baltimore & Ohio R. R., Baltimore Md.

RAILWAY SUPPLY MANUFACTURERS' ASSOCIATION.—J. D. Conway, 1841 Oliver Bldg., Pittsburgh, Pa. Meets with Mechanical Division Purchases and Stores Division and Motor Transport Division, American Railway Association.

RAILWAY TELEGRAPH AND TELEPHONE APPLIANCE ASSOCIATION.—G. A. Nelson, Waterbury Battery Company, 30 Church St., New York. Meets with Telegraph and Telephone Section of A. R. A. Division I.

RAILWAY TIE ASSOCIATION.—Roy M. Edmonds, 1252 Syndicate Trust Bldg., St. Louis, Mo.

RAILWAY TREASURY OFFICERS ASSOCIATION.—L. W. Cox, 1428 Broad Street Station Building, Philadelphia, Pa.

ROADMASTERS' AND MAINTENANCE OF WAY ASSOCIATION.—T. F. Donahoe, Gen. Supvr. Road, Baltimore & Ohio, Pittsburgh, Pa. Annual meeting, September 19-21, 1933, Hotel Stevens, Chicago, Ill.

ST. LOUIS RAILWAY CLUB.—B. W. Frauenthal, Drawer 24, M. P. O., St. Louis, Mo. Meetings temporarily suspended.

SIGNAL APPLIANCE ASSOCIATION.—G. A. Nelson, Waterbury Battery Company, 30 Church St., New York. Meets with A. R. A. Signal Section.

SOCIETY OF OFFICERS, EASTERN ASSOCIATIONS OF RAILROAD VETERANS.—M. W. Jones, Baltimore & Ohio, Mt. Royal Station, Baltimore, Md. Annual meeting, October 7-8, 1933, Scranton, Pa.

SOUTHERN AND SOUTHWESTERN RAILWAY CLUB.—A. T. Miller, 4 Hunter St., S.E., Atlanta, Ga. Regular meetings, third Thursday in January, March, May, July, September and November, Ansley Hotel, Atlanta.

SOUTHERN ASSOCIATION OF CAR SERVICE OFFICERS.—R. G. Parks, A. B. & C. R. R., Atlanta, Ga.

SUPPLY MEN'S ASSOCIATION.—E. H. Hancock, Treasurer, Louisville Varnish Co., Louisville, Ky. Meets with A. R. A. Division V. Equipment Painting Section.

TOOL FOREMEN SUPPLIERS' ASSOCIATION.— E. E. Caswell, Union Twist Drill Co., 11 S. Clinton St., Chicago, Ill. Meets with American Railway Tool Foremen's Association.

TORONTO RAILWAY CLUB.—N. A. Walford, P. O. Box 8, Terminal "A," Toronto. Regular meetings first Friday of each month, except June, July and August, Royal York Hotel, Toronto, Ont.

TRACK SUPPLY ASSOCIATION.—L. C. Ryan, Oxweld Railroad Service Co., Carbon & Carbide Building, Chicago. Meets with Roadmasters and Maintenance of Way Association.

TRAVELING ENGINEERS' ASSOCIATION.—W. O. Thompson, 1177 East 98th St., Cleveland, O.

WESTERN RAILWAY CLUB.—J. H. Nash, Dri-Steam Valve Sales Corp., 122 S. Michigan Ave., Chicago. Regular meetings third Monday of each month, except June, July, August and September, Hotel Sherman, Chicago.

Equipment and Supplies

FREIGHT CARS

THE UNITED STATES NAVY DEPARTMENT has received bids for three steel box cars of 50 tons' capacity for which it was inquiring as reported in the *Railway Age* of October 22. The General American Car Company was the lowest bidder.

THE NEW YORK CENTRAL application to the Reconstruction Finance Corporation for a "work loan" of $2,500,000 for the purpose of repairing equipment in its own shops was approved by the Interstate Commerce Commission on November 1. The work contemplated consists of repairs to 10,000 steel box cars, at an average estimated cost of $150 per car, and repairs to 3,000 automobile box cars, at an average exceeding $300 per car. For the first-named group the repairs would include floors, linings, running gear, and painting, and, in the second group, draft gears and the application of new roofs. It was estimated that the work would require about 1,500 men for seven or eight months, on the basis of 40 hours of labor per week. The company requested permission, if conditions should be found to require it, to modify the foregoing program, reducing the number of box cars to 7,500, eliminating the automobile box cars and substituting 4,000 hopper cars and 1,000 stock cars. Further, it may desire to substitute for the hopper cars certain passenger and freight locomotives, the repairs to which are estimated at $9,000 per locomotive. This locomotive work would furnish employment to about 1,200 men for four or five months, in the company's shops.

IRON AND STEEL

THE DELAWARE, LACKAWANNA & WESTERN has placed an order for 4,000 tons of 130-lb. steel rail, for delivery in January.

MISCELLANEOUS

THE ILLINOIS CENTRAL has purchased from the De Vilbiss Company, Toledo, Ohio, two 90-ft. canopy-type car exhausts to be installed at the I. C. shops at Burnside (Chicago), Ill., for use in the spray painting of passenger equipment. These car exhausts have been ordered for immediate installation and it is expected that they will be in operation by the middle of November.

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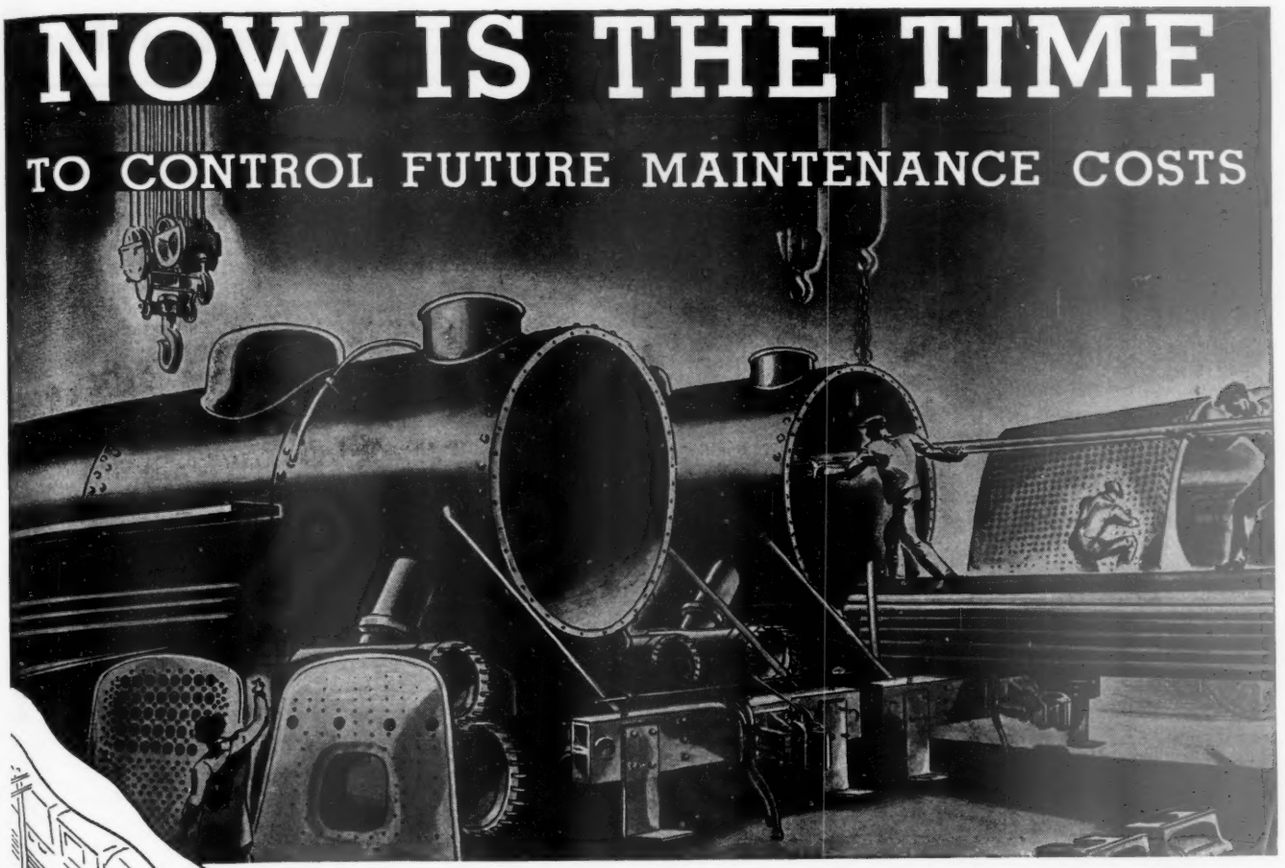
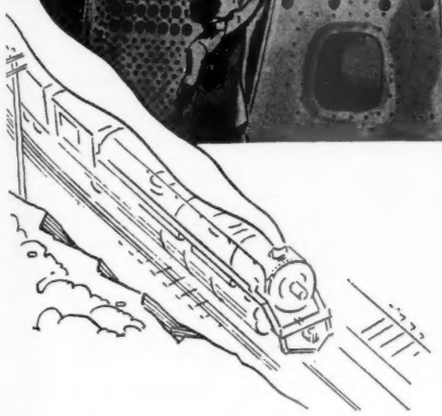
NOW IS THE TIME

TO CONTROL FUTURE MAINTENANCE COSTS





Rusted and worn equipment now awaits repair. How soon it will be back for further work depends largely upon what goes into it now. « Modern metallurgy has placed new, longer-lasting materials at your elbow. Materials that will postpone future repairs and help lift the maintenance burden. « For case-hardened parts Republic metallurgists have perfected Agathon Nickel Iron which provides a tougher core which, in turn, means fewer breakages. « When axles, rods and pins encounter higher stresses, there are Agathon Alloy Steels of greater strength and fatigue resistance to meet the new demands. « Alloy staybolts of both steel and iron are furnished by Republic to supply the increased fatigue resistance and greater uniformity of composition that reduce staybolt breakage. « Toncan Iron has an increased corrosion resistance that makes it preferred for boiler tubes, firebox sheets, car plates, and everywhere that corrosion is troublesome. « Use these better materials to control the rising tide of equipment maintenance.

Toncan Iron Boiler Tubes, Pipe, Plates, Culverts, Rivets, Staybolts, Tender Plates and Firebox Sheets • Sheets and Strip for special railroad purposes • Agathon Alloy Steels for Locomotive Parts • Agathon Engine Bolt Steel • Agathon Iron for pins and bushings • Agathon Staybolt Iron • Climax Steel Staybolts • Upson Bolts and Nuts • Track Material, Maney Guard Rail Assemblies • Enduro Stainless Steel for dining car equipment, for refrigeration cars and for firebox sheets • Agathon Nickel Forging Steel.

The Birdsboro Steel Foundry & Machine Company of Birdsboro, Penna., has manufactured and is prepared to supply under license, Toncan Copper Molybdenum Iron castings for locomotives.

CENTRAL ALLOY DIVISION

REPUBLIC STEEL CORPORATION

MASSILLON OHIO

AGATHON STEELS

TONCAN COPPER MOLYBDENUM IRON

Supply Trade

C. E. Murphy has been appointed district sales manager for the **Morden Frog & Crossing Works**, at Cleveland, Ohio.

Mark G. Mueller has been appointed district sales agent in Colorado, New Mexico and western Kansas for the **Roller-Smith Company,** New York, with headquarters at Denver, Colo.

W. A. Taylor has been appointed division manager in charge of the Chicago office of the **A. M. Byers Company,** Pittsburgh, Pa. Mr. Taylor was formerly assistant manager; he replaces M. G. Henderson, who has resigned.

Thomas P. McGinnis has been appointed representative of **The Locomotive Finished Material Company,** Atchison, Kan. Mr. McGinnis will have his headquarters in the Chamber of Commerce building, Pittsburgh, Pa., and will cover the Pittsburgh and eastern Ohio territory.

Raymond O. Young, who has been associated with the central organization of the **Hale & Kilburn Company,** Philadelphia, Pa., for many years in engineering and sales capacities, has been appointed western sales manager, with headquarters in the McCormick building, Chicago, to succeed **H. B. Gengenbach,** who has resigned.

Dr. Willis Rodney Whitney, organizer and for 32 years director of the research laboratory of the **General Electric Company,** Schenectady, N. Y., retired from that position on November 1 because of ill health. He has been succeeded by **Dr. William David Coolidge,** senior associate director of the laboratory. Dr. Whitney continues as vice-president in general charge of research.

The selling arrangement reported in the *Railway Age* of September 17, page 415, between the **Peerless Equipment Company** of New York and Chicago, and the **Hennessy Lubricator Company,** New York, has been abandoned, and all communications pertaining to Hennessy lubricators should be addressed to the Hennessy Lubricator Company at 75 West street, New York.

C. E. Stephens, commercial vice-president of the **Westinghouse Electric & Manufacturing Company,** has been elected a vice-president of this company, with headquarters as formerly at New York, and **N. G. Symonds,** commercial vice-president at Chicago has been elected vice-president in charge of sales with headquarters at the general offices of the company, East Pittsburgh, Pa.

Mr. Stephens was born in Texas and attended Ferris Institute in that state. He entered the service of the Westinghouse Company in 1900. After serving an apprenticeship at East Pittsburgh, he was engaged in shop operations, then entered the engineering department and was finally promoted to the position of illuminating engineer. He then entered sales work and was made manager of the illuminating section of the sales department and afterwards was transferred to New York as a division manager. In 1925 he was appointed

C. E. Stephens

manager of the New York district and later when that territory was expanded, Mr. Stephens was appointed eastern district manager and since 1930 he has served as commercial vice-president.

Mr. Symonds was born at Ossining, N. Y., and was educated at Los Gatos, (Cal.) high school, later graduating from Leland Stanford University in 1901 as an electrical engineer. He entered the service of the Westinghouse Church Kerr Company in New York in 1902 as a member of its stoker erecting department. The following January he was appointed district superintendent of stoker erection and about two years later was transferred to East Pittsburgh as assistant engineer of the Westinghouse Machine Company's stoker department, and in 1905 was sent to

N. G. Symonds

Chicago. In 1915, when the Westinghouse Machine Company was absorbed by the Westinghouse Electric & Manufacturing Company, Mr. Symonds was appointed manager of the power division of the Chicago office. Three years later he was made manager of the industrial division in the same office and in 1921 was appointed Chicago district manager. He was elected commercial vice-president in 1930, the position he held at the time of his recent election as vice-president in charge of sales.

Construction

CHICAGO GREAT WESTERN.—A contract has been awarded to the National Boiler Washing Company, Chicago, for the installation of a boiler washout system serving 40 stalls in this company's enginehouse at Oelwein, Iowa.

FORT WORTH & RIO GRANDE—TEXAS & PACIFIC.—A contract has been awarded to the Bellows-Maclay Construction Company, Dallas, Tex., for the construction of a 544-ft. reinforced concrete and steel viaduct over the tracks of the Texas & Pacific and Ft. Worth & Rio Grande (a unit of the St. Louis-San Francisco) at Fort Worth, Tex., at an estimated cost of $60,000. This project is being undertaken jointly by the two railroads and the city of Ft. Worth.

SOUTHERN PACIFIC.—A contract has been awarded to J. DePuy, San Antonio, Tex., for the construction of reinforced concrete piers at this company's bridge across the Devil's river west of Del Rio, Tex., to replace stone piers that were washed out on September 1.

WABASH.—The Great Lakes Dredge & Dock Company, Chicago, has been awarded a contract for the construction of approximately 200 lin. ft. of steel sheet piling dock wall at Frankfort, Mich. This company has also undertaken with its own forces the installation of an 85-ft. second-hand balance-type turntable at East Switch, Iowa, to replace a 60-ft. turntable of the same type.

Financial

ATCHISON, TOPEKA & SANTA FE.—*Revised Leases.*—The Interstate Commerce Commission has authorized this company to control under a substitute lease the Oklahoma Central and the Rocky Mountain & Santa Fe.

CHICAGO, INDIANAPOLIS & LOUISVILLE.—*Notes.*—The Interstate Commerce Commission has authorized this company to issue $1,121,000 of promissory notes to procure part of the funds necessary to pay maturing interest and taxes.

CHICAGO, SPRINGFIELD & ST. LOUIS.—*Hearing on Disposition.*—United States District Judge Louis FitzHenry has called a hearing for November 5 to determine the next step in the disposition of the Chicago, Springfield & St. Louis, following the failure of the plans of the Chicago & Illinois Midland to take over and rehabilitate the line. When the line was sold in foreclosure proceedings in June, 1931, for $200,000 to W. Chester Bottome and John F. Howden, representing the bond-holders' committee, the Chicago & Illinois Midland planned to lease the line and the foreclosure sale was contingent upon this agreement. However, the collapse of the public utility set-up of Samuel

Continued on next left-hand page

Vital Parts

MR. Railroad Executive: How much importance do you place upon the shoes and wedges of your locomotives?

Shoes and wedges which resist wear and shocks cause little trouble from driving box pounds. Shoes and wedges made of HUNT-SPILLER *Air Furnace* GUN IRON possess these wear-resisting qualities.

Their application will help your maintenance forces keep out those disastrous driving box pounds which shorten the service life of frames, axles, bearings and all reciprocating parts.

HSGI
Reg. U. S. Trade Mark

Cylinder Bushings
Cylinder Packing Rings
Pistons or Piston Bull Rings
Valve Bushings
Valve Packing Rings
Valve Bull Rings
Crosshead Shoes
Hub Liners
Shoes and Wedges
Floating Rod Bushings

Parts Finished for Application

Dunbar Sectional Type Packing
Duplex Sectional Type Packing
(Duplex Springs for Above Sectional Packing)
Cylinder Snap Rings
Valve Rings All Shapes

HUNT-SPILLER MFG. CORPORATION
J. G. Platt, Pres. & Gen. Mgr. V. W. Ellet, Vice-President.

Office and Works
383 Dorchester Ave. South Boston, 27, Mass.
Canadian Representative: Joseph Robb & Co., Ltd., 997 Aqueduct St., Montreal, P. Q.
Export Agent for Latin America:
International Rwy. Supply Co. 30 Church Street, New York, N. Y.

HUNT-SPILLER *Air Furnace* GUN IRON

Insull, which controlled the Chicago & Illinois Midland, has precluded the possibility of carrying through the agreement. Mr. Bottome and Mr. Howden have consented to a transfer of their rights to the bond-holders' committee of the Chicago, Springfield & St. Louis, and Judge Fitz-Henry has ordered the creditors of the company to show why this should not be done. At the foreclosure sale the purchasers posted $50,000 in bonds to guarantee their bid and since then have been granted repeated extensions of time for completing payment.

CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC.—*Abandonment.*—The Interstate Commerce Commission has authorized this company to abandon a portion of a branch line extending from its terminus at Troy Center, Wis., to a point about a mile east of its station at Elkhorn, approximately 10.5 miles.

DELAWARE, LACKAWANNA & WESTERN.—*Notes.*—This company and the New York, Lackawanna & Western have applied to the Interstate Commerce Commission for authority to issue $1,568,000 of promissory notes and to pledge $6,339,000 of N. Y. L. & W. bonds as security for them and $1,432,000 of notes heretofore authorized.

ERIE.—*Abandonment.*—The Interstate Commerce Commission has authorized this company and the New York, Lake Erie & Western Coal Railroad Company to abandon its Keystone branch, extending from Keystone, Pa., 1.2 miles to a mine.

GAINESVILLE MIDLAND.—*R. F. C. Loan.*—The Interstate Commerce Commission has approved a loan of $25,000 to this company from the Reconstruction Finance Corporation for the payment of principal and interest on notes, overdue vouchers, and payrolls, on its application for $55,105.

KANSAS CITY TERMINAL.—*R. F. C. Loan.*—This company has applied to the Reconstruction Finance Corporation for a loan of $700,000.

MINNEAPOLIS & ST. LOUIS.—*Receivers Certificates.*—The Interstate Commerce Commission has authorized the receiver of this company to issue $615,000 of receivers certificates to renew or extend certificates of like amount which will mature during November and December.

MORRISTOWN & ERIE.—*R. F. C. Loan.*—This company has applied to the Reconstruction Finance Corporation for a loan of $150,000.

NEW YORK CENTRAL.—*R. F. C. "Work Loan" Approved.*—The Interstate Commerce Commission on November 1 approved this company's application, filed October 27, for a "work loan" of $2,500,000 from the Reconstruction Finance Corporation, to be advanced in monthly instalments of approximately $350,000 each, for the purpose of repairing equipment. The work contemplated consists of repairs to 10,000 steel box cars and 3,000 automobile box cars, although permission was requested to modify the program. The commission had heretofore approved loans to this company of $4,399,000 and $13,600,000. (See Equipment and Supplies.)

NEW YORK, CHICAGO & ST. LOUIS.—*Receivership Petition.*—The United States district court at Chicago has granted to attorneys for Samuel Kaplan, holder of three $1,000 gold notes of this road, an extension of time until November 7 in which to file an amended petition for the appointment of a receiver for the Nickel Plate. The amended petition was to have been filed on October 27. The petition for a receiver in equity was filed in the federal court at Chicago on October 3.

NEW YORK, CHICAGO & ST. LOUIS.—*Acquisition of Terminal Property.*—The Interstate Commerce Commission has authorized this company to acquire the railroad yard of the Northern Ohio Food Terminal, Inc., in Cleveland, Ohio, and to assume obligation and liability as primary obligator for $1,955,000 of terminal-yard mortgage 50-year 6 per cent, Series A, bonds issued by the terminal company and to pledge these bonds as collateral security for short term notes.

PACIFIC COAST.—*Acquisition.*—The Pacific Coast R. R. Co. has been authorized by the Interstate Commerce Commission to acquire and operate the railroad properties of the Pacific Coast Railroad Company, extending from Seattle, Wash., southeasterly to Maple Valley, 22.4 miles, with branch lines totaling 26.8 miles. The change in ownership is made necessary by the expiration of the older company's charter.

PENINSULAR.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon 32 miles of lines in Santa Clara county, Cal.

PENNSYLVANIA.—*Bonds.*—The Interstate Commerce Commission has authorized the Pittsburgh, Cincinnati, Chicago & St. Louis to issue $1,223,000 of general mortgage, series D, bonds to be delivered at par to the Pennsylvania in reimbursement for advances made to pay bonds which matured on October 1. The parent company is authorized to assume liability for the bonds.

PERE MARQUETTE.—*R. F. C. Loan.*—This company has applied to the Reconstruction Finance Corporation for an additional loan of $1,000,000 to meet interest requirements.

PITTSBURGH & WEST VIRGINIA.—*Bonds.*—The Interstate Commerce Commission has authorized this company to procure the authentication and delivery of $601,000 of general mortgage 6 per cent bonds in respect of capitalizable assets and the retirement of equipment trust certificates.

PITTSBURGH & WEST VIRGINIA.—*R. F. C. Loan.*—The Interstate Commerce Commission has approved a further loan of $169,985 to this company from the Reconstruction Finance Corporation to pay in part the principal and interest of equipment trust certificates. The company had previously borrowed $3,771,788. Commissioner Mahaffie dissented, saying he would approve the loan only on condition that it be guaranteed by the Pennroad Corporation.

PUGET SOUND & CASCADE.—*R. F. C. Loan.*—The Interstate Commerce Commission has approved a loan of $300,000 to this company from the Reconstruction Finance Corporation to liquidate indebtedness to the Puget Sound Pulp & Timber Company, which owns the stock of the railroad. The loan is in substance one to the pulp company, the report says, adding that it seems to be adequately secured but that "whether it is proper to use an arrangement of this character to secure funds for a corporation which is not itself eligible to borrow presents a question by no means free from doubt under the terms of the Reconstruction Act. But we take it that question must be determined by the board of the Reconstruction Finance Corporation rather than by us."

READING.—*Equipment Trust.*—The Interstate Commerce Commission has authorized this company to assume liability for $1,800,000 of its 5 per cent series N, equipment trust certificates, maturing in installments until 1942. Arrangement for sale or pledge of these certificates has not yet been made.

SEABOARD AIR LINE.—*R. F. C. Loan.*—The receivers have applied to the Reconstruction Finance Corporation for a loan of $1,500,000 to meet various claims. The commission had previously denied an application for $3,000,000.

SOUTHERN.—*Abandonment.*—The Interstate Commerce Commission has authorized the abandonment as to interstate and foreign commerce of a line of the Sievern & Knoxville extending from Batesburg, S. C., to Sievern, 17.4 miles, and the abandonment of operation of the line extending from Sievern to Perry, 7.7 miles. The Southern Railway, lessee, has been authorized to abandon the line from Sievern to Perry.

SOUTHERN PACIFIC.—*Acquisition of the San Diego & Arizona.*—The Interstate Commerce Commission has authorized the San Diego & Arizona Eastern to acquire the railroad properties of the San Diego & Arizona. The new company is authorized to issue 27,954 shares of capital stock without par value, to be sold for $2,795,400 and the proceeds used to acquire the S. A. & D. property. It is also authorized to assume liability for $600,000 of S. A. & D. 6½ per cent guaranteed equipment trust certificates. The Southern Pacific is authorized to control the new company by purchase of capital stock, and to guarantee the issue of equipment trust certificates.

SUMPTER VALLEY.—*R. F. C. Loan.*—The Interstate Commerce Commission has approved a loan of $68,500 to this company from the Reconstruction Finance Corporation on its application for $226,000.

UNION PACIFIC.—*Abandonment.*—The Interstate Commerce Commission has authorized the Los Angeles & Salt Lake to abandon two segments of its San Pedro branch, totaling 2 miles, in Long Beach, Cal. The Oregon-Washington has been authorized to abandon a branch extending from Bell, Wash., to Amwaco, Idaho, 14.2 miles. The L. A. & S. L. has also been authorized to abandon a branch extending from a point near Delta, Utah, to Lucerne, 12.8 miles, and another extending from Moody to Hinckley, 3.4 miles.

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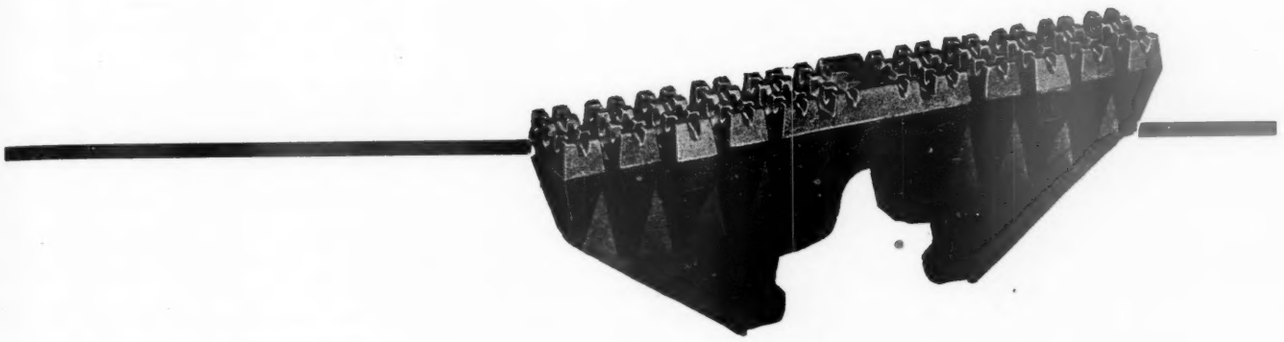
FIREBARS
PAY THEIR WAY



FIREBARS save enough in fuel and maintenance costs to pay for themselves in a reasonably short time.

The constantly increasing number of installations is ample proof of the economies they are effecting.

WAUGH FIREBAR
BETTER FIRES

FIREBAR DIVISION OF

WAUGH EQUIPMENT COMPANY

NEW YORK CHICAGO CLEVELAND ST. LOUIS

Research Laboratory and General Office—DEPEW, N. Y.

CANADIAN WAUGH EQUIPMENT CO., LTD. MONTREAL, QUE.

Average Prices of Stocks and of Bonds

	Oct. 25	Last week	Last year
Average price of 20 representative railway stocks..	23.30	23.77	45.84
Average price of 20 representative railway bonds..	60.03	60.37	76.38

Dividends Declared

Delaware & Hudson.—$1.50, quarterly, payable December 20 to holders of record November 26.

Hudson & Manhattan.—$1.25, semi-annually, payable December 1 to holders of record November 15.

Reading Company.—First Preferred, 50c., quarterly, payable December 8 to holders of record November 17.

Tentative Valuation Reports

The Interstate Commerce Commission has issued tentative valuation reports finding the final value for rate-making purposes of the property owned and used for common-carrier purposes, as of the respective valuation dates, as follows:

Condon, Kinzua & Southern	$380,000	1928
Berlin Mills (property used)	718,000	1927
Graysonia, Nashville & Ashdown	435,000	1927
Montana	36,000	1927

Railway Officers

EXECUTIVE

R. L. Burnap, traffic vice-president of the Canadian National, with headquarters at Montreal, Que., has been appointed executive assistant in connection with lines located in the United States, with headquarters at Chicago. **Alistair Fraser,** assistant general counsel, has been appointed to succeed Mr. Burnap as acting vice-president in charge of traffic.

FINANCIAL, LEGAL AND ACCOUNTING

H. F. Grear, assistant secretary of the Chicago & Illinois Midland, with headquarters at Springfield, Ill., has been elected also assistant treasurer, succeeding **Frank Carter,** who has retired.

V. J. Thompson, assistant chief operating officer of the Mobile & Ohio, has been appointed assistant to the receiver, with headquarters as before at St. Louis, Mo., and the position of assistant chief operating officer has been abolished.

OPERATING

F. L. Goodman, trainmaster of the Galesburg division of the Chicago, Burlington & Quincy, with headquarters at Galesburg, Ill., has been promoted to assistant superintendent of the Beardstown division, with headquarters at Centralia, Ill., where he succeeds **J. L. Mulroy,** who has been appointed acting assistant superintendent of the Aurora division, at Aurora, Ill. Mr. Mulroy succeeds **A. J. Carter,** who has been granted a leave of absence. **E. P. Stine,** freight service inspector at Bridgeport, Neb., has been promoted to trainmaster of the Beardstown division, at Beardstown, succeeding **A. F. McKelvie,** who has been transferred to the Galesburg division to succeed Mr. Goodman.

R. W. Scott, superintendent of the Canadian Pacific in the Ontario district, with headquarters at Toronto, Ont., has been appointed superintendent of the Montreal terminals, succeeding **T. Collins. R. A. Sewell,** superintendent in the Algoma district, with headquarters at Schreiber, Ont., has been appointed superintendent at Farnham, Que., succeeding **B. J. Quilty. F. M. Donegan** has been appointed assistant superintendent of the Farnham division, succeeding **E. J. Walker.**

Following the extension of the jurisdiction of **Juan José Franco,** general superintendent of transportation of the Southern region of the National of Mexico, over the Northern region, as noted in the *Railway Age* of September 17, **David S. Alonso,** general superintendent of transportation of the Northern region, with headquarters at Monterrey, N. L., has been appointed superintendent of the Mexico division, with headquarters at Mexico, D. F., succeeding **A. M. Bribiesca,** who has been transferred to the Centro division, with headquarters at Aguascalientes, Ags. **J. Diaz Leal,** assistant superintendent at Jalapa, Ver. C., has been promoted to superintendent of the Pacifico division with headquarters at Acambaro, Gto., succeeding **Manuel J. Macías,** who has been appointed superintendent of fuel, with headquarters at Mexico, D. F. **Pablo M. Hernandez** has been appointed traveling superintendent of transportation, with headquarters at Mexico, D. F.

TRAFFIC

S. A. Foster has been appointed general agent for the Waco, Beaumont, Trinity & Sabine, at Lincoln, Neb.

W. T. Turner, assistant freight traffic manager of the Southern, with headquarters at Washington, D. C., has been appointed freight traffic manager in charge of Eastern territory, succeeding **F. D. Claggett,** deceased, and **L. V. Crane,** assistant to the vice-president, has been appointed assistant freight traffic manager, succeeding Mr. Turner.

MECHANICAL

E. G. Haskins, master mechanic on the Denver & Rio Grande Western, with headquarters at Grand Junction, Colo., has retired after 50 years' service with that road.

H. H. Harvey, general car foreman on the Chicago, Burlington & Quincy, at Chicago, who has been on a leave of absence since late in 1931, has resumed his duties, displacing **N. J. Bricher,** acting general car foreman, who has returned to his former position as general foreman at the Aurora (Ill.) shops of the Burlington.

OBITUARY

Harwood M. Cushing, who retired in June as division passenger agent for the Denver & Rio Grande Western at Salt Lake City, Utah, died on October 24 in a hospital at that point.

Edward P. Kelly, assistant to the general manager of the Chicago, Rock Island & Pacific, with headquarters at El Reno, Okla., died at Halstead, Kan., on October 21, following a long illness.

John A. Fitzpatrick, general freight traffic manager of the New York, Chicago, & St. Louis, with headquarters at Cleveland, Ohio, died on October 30, as a result of injuries received in an automobile accident. Mr. Fitzpatrick had been in railway service almost continuously for 40 years. He was born on November 8, 1874, at Kidder, Mo., and was educated at the Christian Brothers' College, St. Louis, Mo. He first entered railway service in 1892 as a telegraph operator, later serving with the Wabash as a telegraph operator at various points. His railway service also included similar positions on the Southern Pacific and the Denver & Rio Grande Western. During the Spanish-American war, Mr. Fitzpatrick, served with the Fourth Missouri Volunteer Infantry, and in 1905, he went with the Toledo, St. Louis & Western (now part of the Nickel Plate), as a city passenger agent, serving successively with this road as traveling freight agent at St. Louis, Mo., commercial

John A. Fitzpatrick

agent at Dallas, Tex., Buffalo, N. Y., and Los Angeles, Cal., general freight agent at Pittsburgh, Pa., and assistant general freight agent and assistant general traffic manager at Toledo, Ohio. Following the absorption of the Toledo, St. Louis & Western by the Nickel Plate in 1923, Mr. Fitzpatrick was appointed assistant traffic manager of the Nickel Plate, with headquarters at Cleveland. Several years later he was promoted to freight traffic manager and in 1927 he was appointed general freight traffic manager, which position he was holding at the time of his death.